FIG. 1

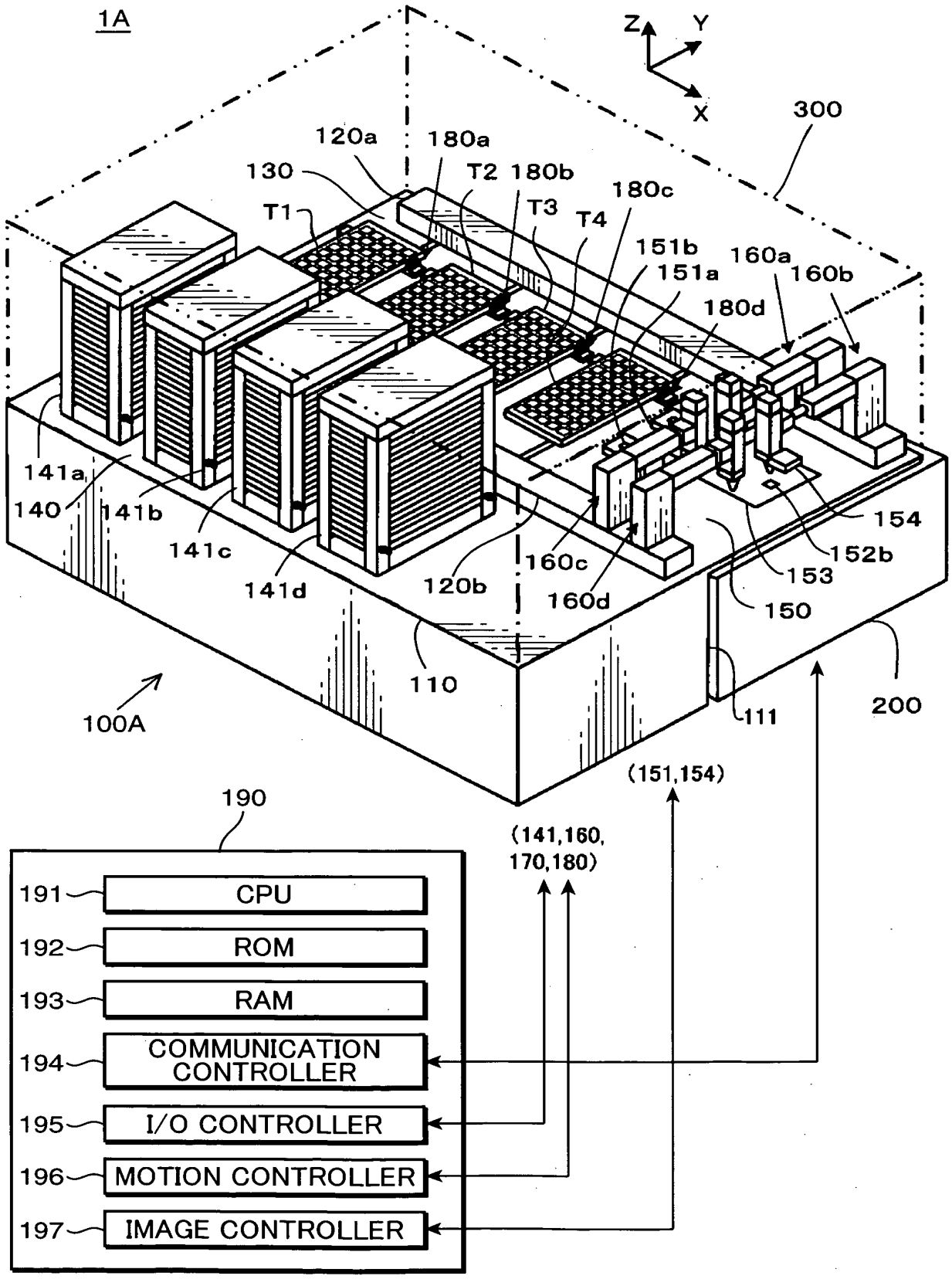

1A
Z
Y
X
300
120a
180a
130
T2
180b
T1
T3
T4
180c
151b
151a
160a
160b
180d
141a
140
141b
141c
141d
120b
160c
160d
154
152b
153
150
110
111
200
100A
(151,154)
190
(141,160,
170,180)
191
CPU
192
ROM
193
RAM
194
COMMUNICATION
CONTROLLER
195
I/O CONTROLLER
196
MOTION CONTROLLER
197
IMAGE CONTROLLER

FIG. 2

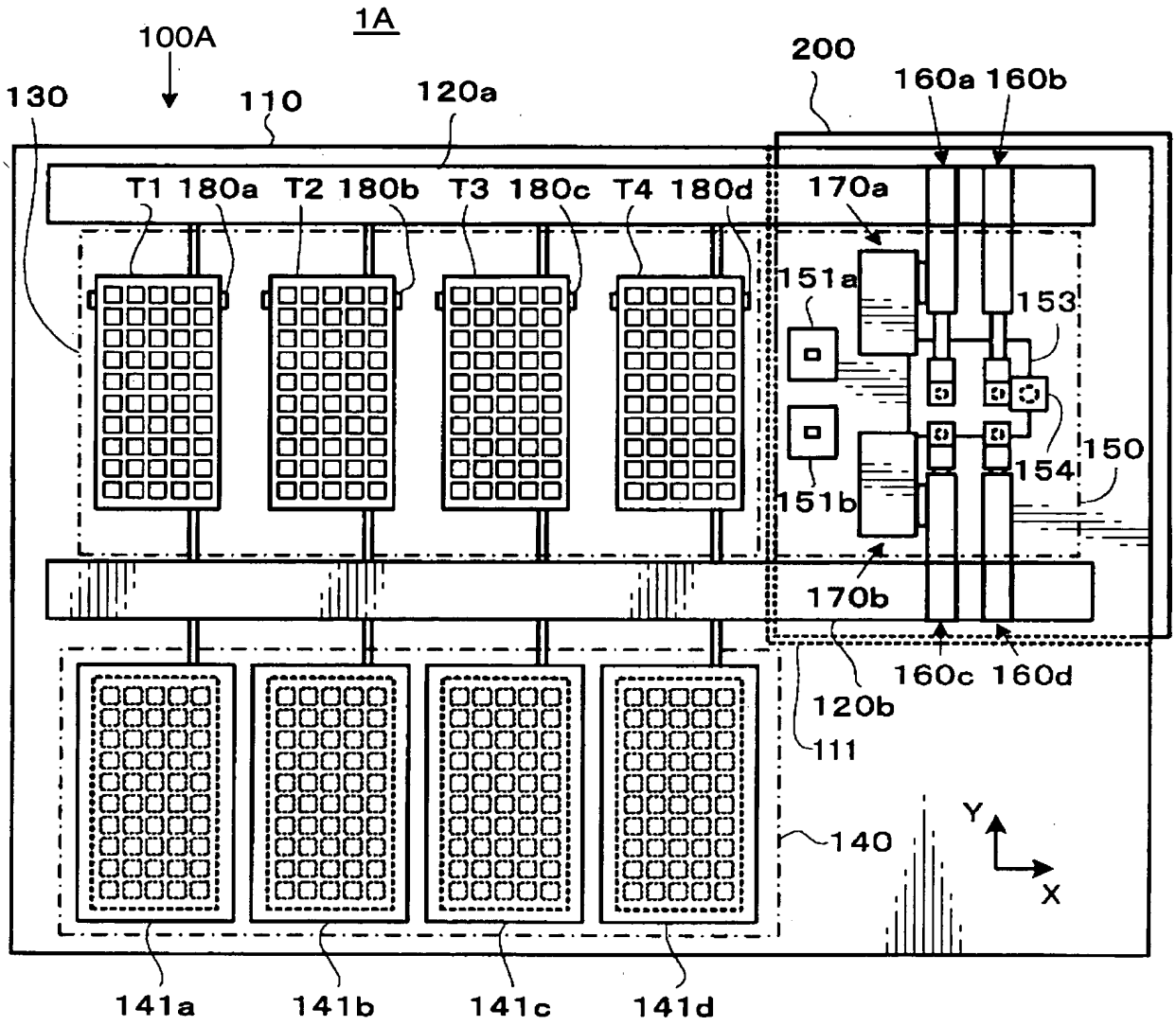

1A
100A
130
110
120a
200
160a 160b
T1 180a T2 180b T3 180c T4 180d
170a
151a
153
154
150
151b
170b
160c 160d
120b
111
140
Y
X
141a
141b
141c
141d

FIG. 3

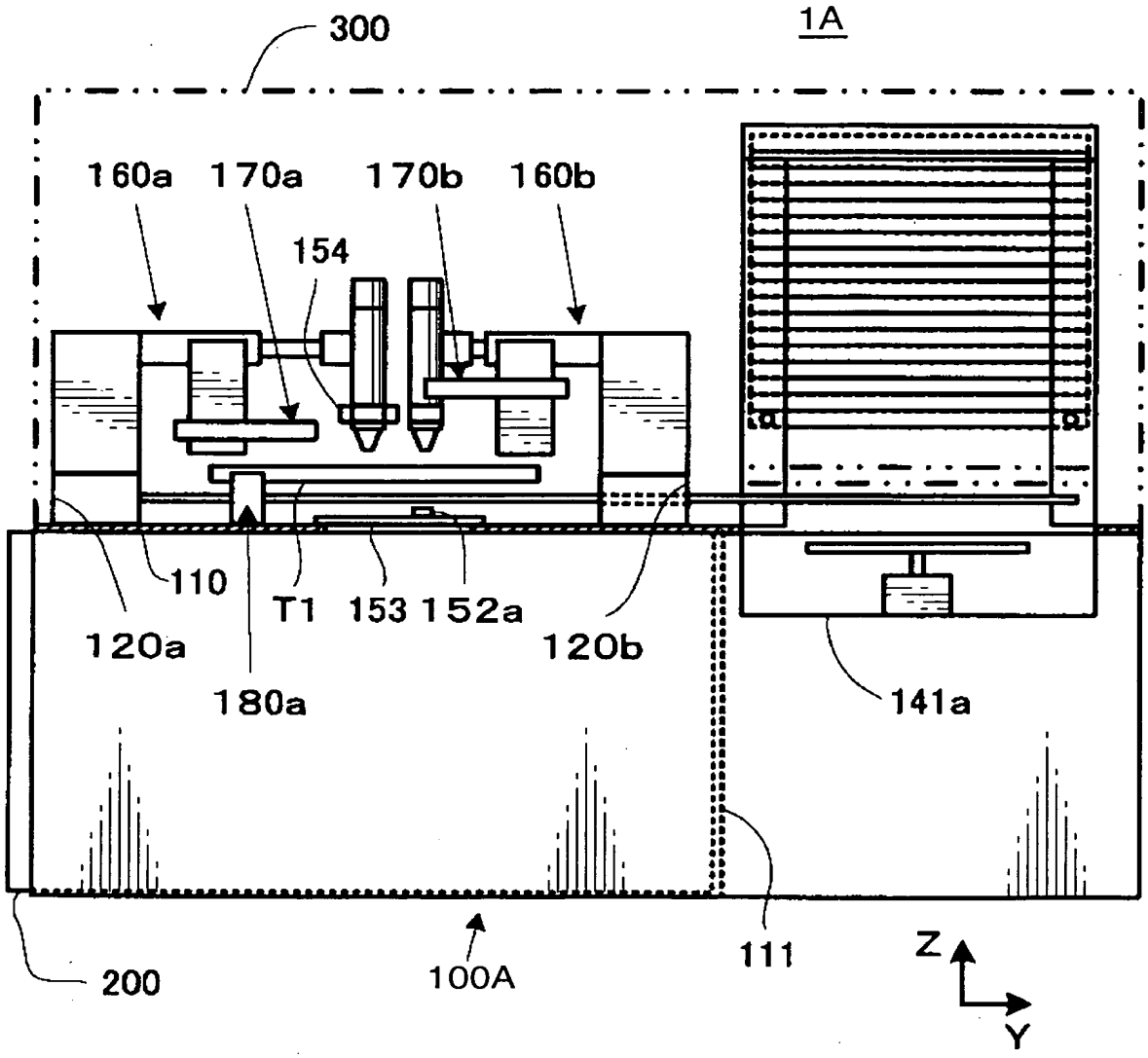

300
1A
160a
170a
170b
160b
154
110
T1
153
152a
120a
120b
180a
141a
200
100A
111
Z
Y

FIG. 4

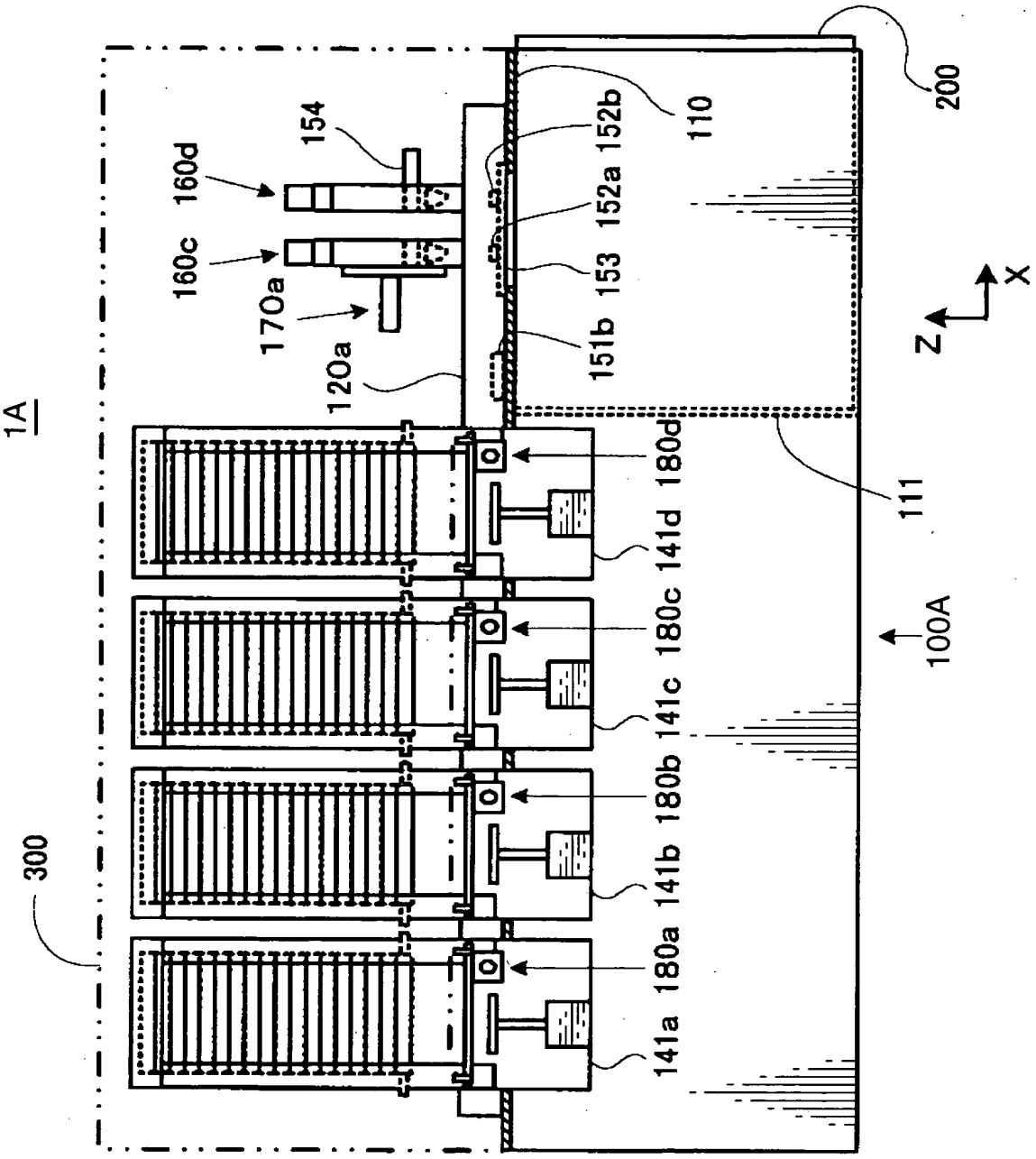

1A
300
160d
160c
170a
154
120a
152b
152a
153
151b
110
200
111
100A
141a 180a
141b 180b
141c 180c
141d 180d
Z
X

FIG. 5

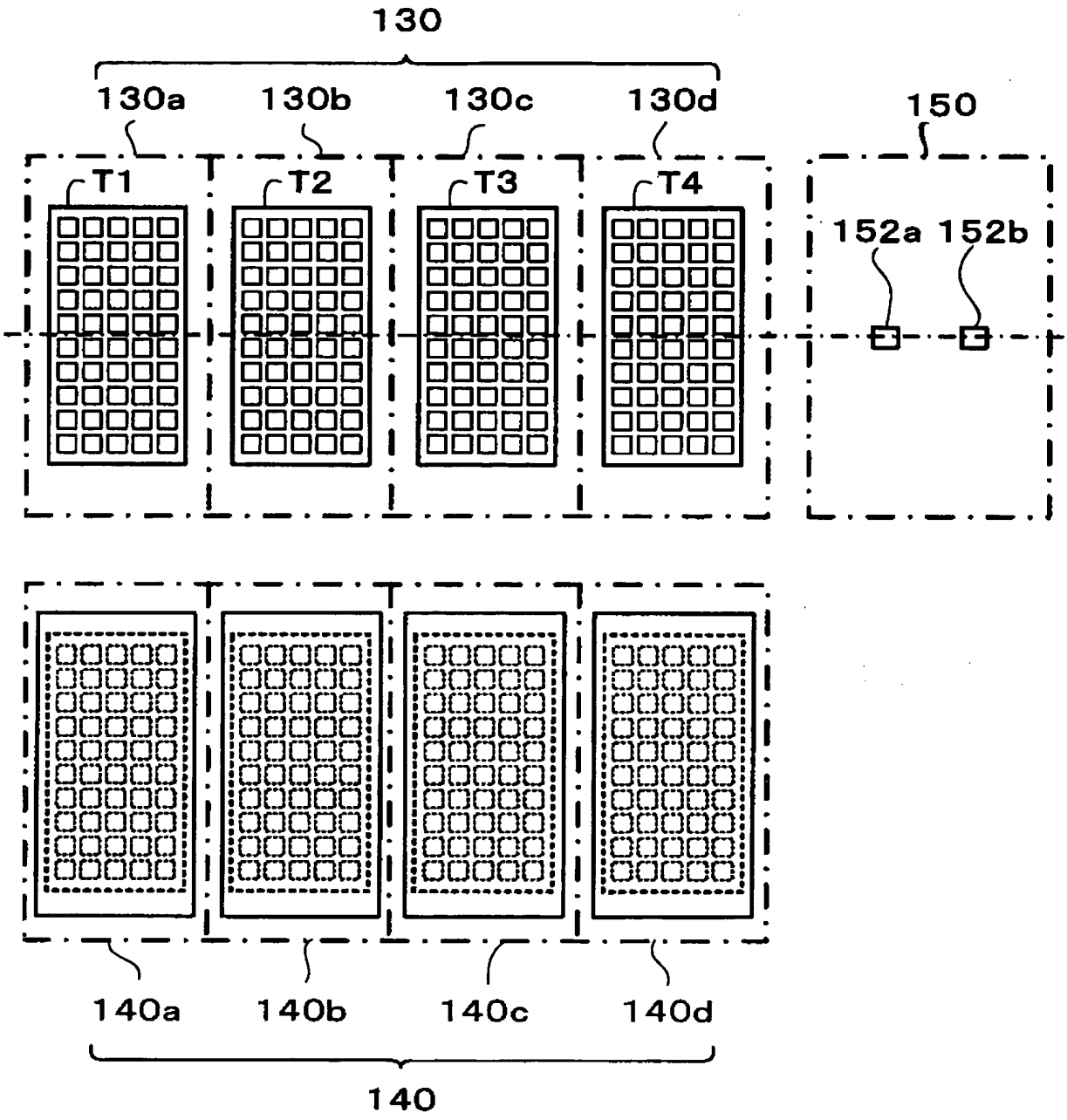

130
130a
130b
130c
130d
150
T1
T2
T3
T4
152a
152b
140a
140b
140c
140d
140

FIG. 6

	AREA130a	AREA130b	AREA130c	AREA130d
DISPOSITION 1	ALREADY-INSPECTED 1	ALREADY-INSPECTED 2	EMPTY TRAY	NOT-YET-INSPECTED
DISPOSITION 2	EMPTY TRAY	ALREADY-INSPECTED 1	ALREADY-INSPECTED2	NOT-YET-INSPECTED
DISPOSITION 3	ALREADY-NSPECTED 1	ALREADY-INSPECTED 2	NOT-YET-INSPECTED	EMPTY TRAY

10/506809

FIG. 7

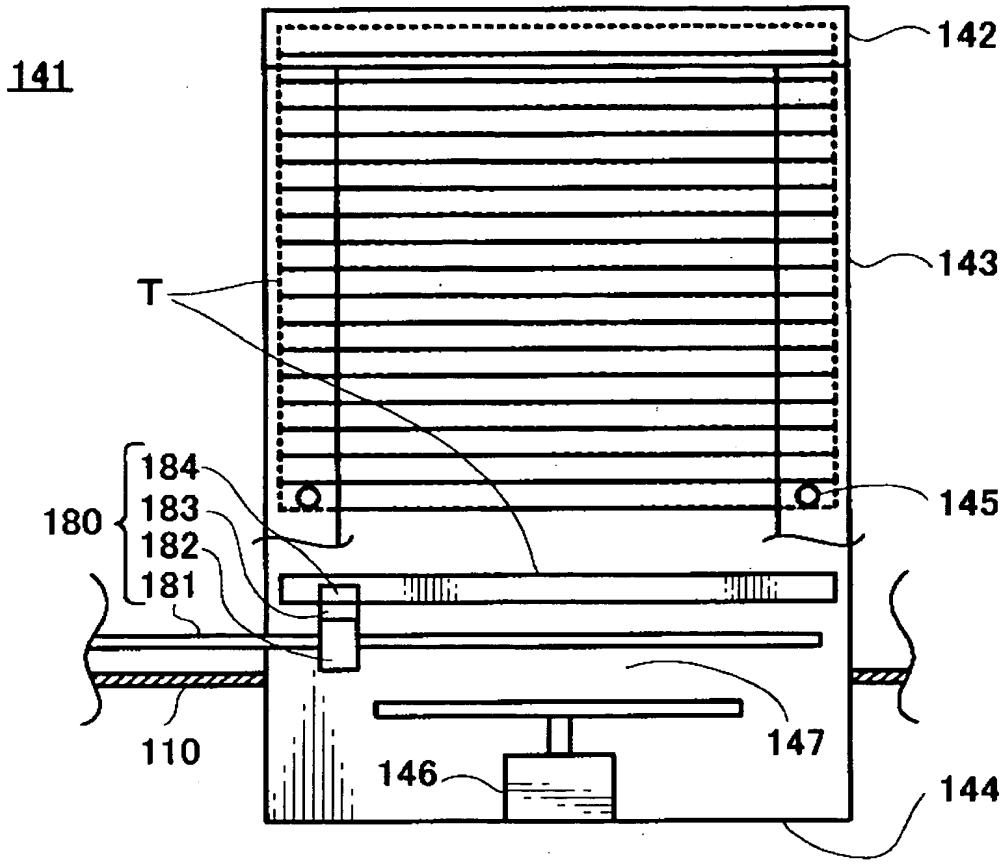


FIG. 8

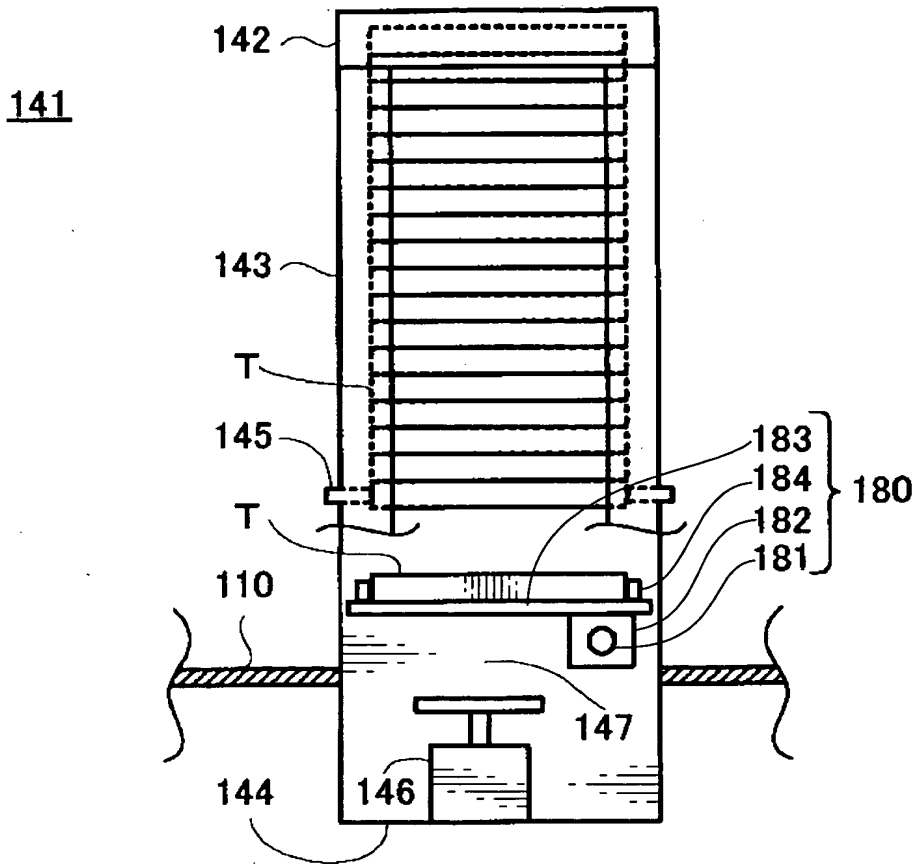


FIG. 9A

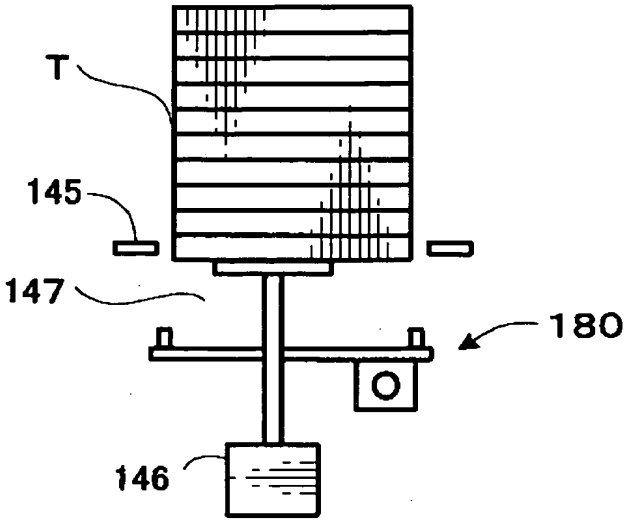


FIG. 9B

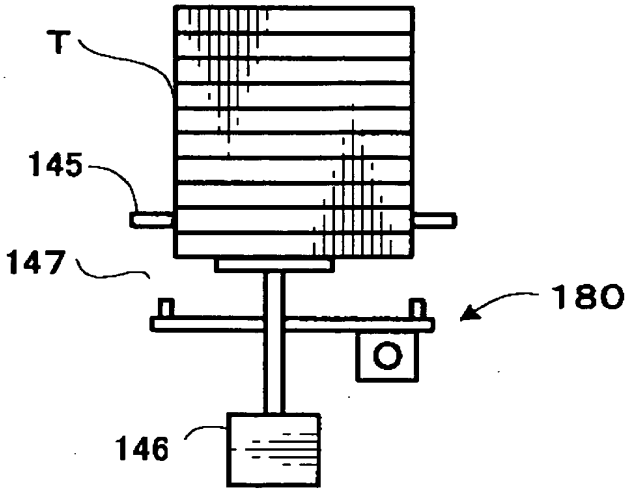


FIG. 9C

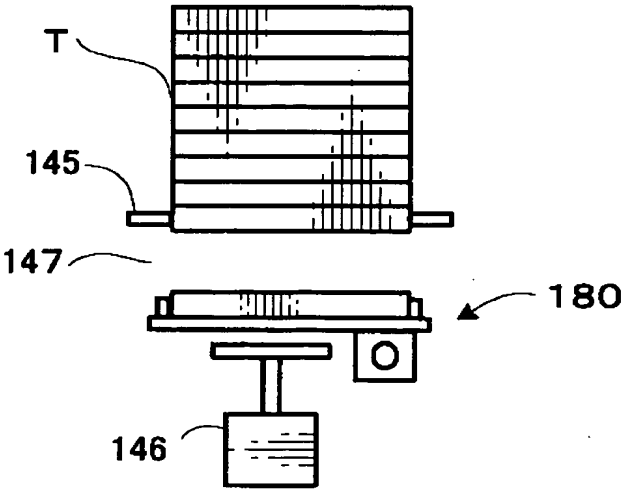


FIG. 10

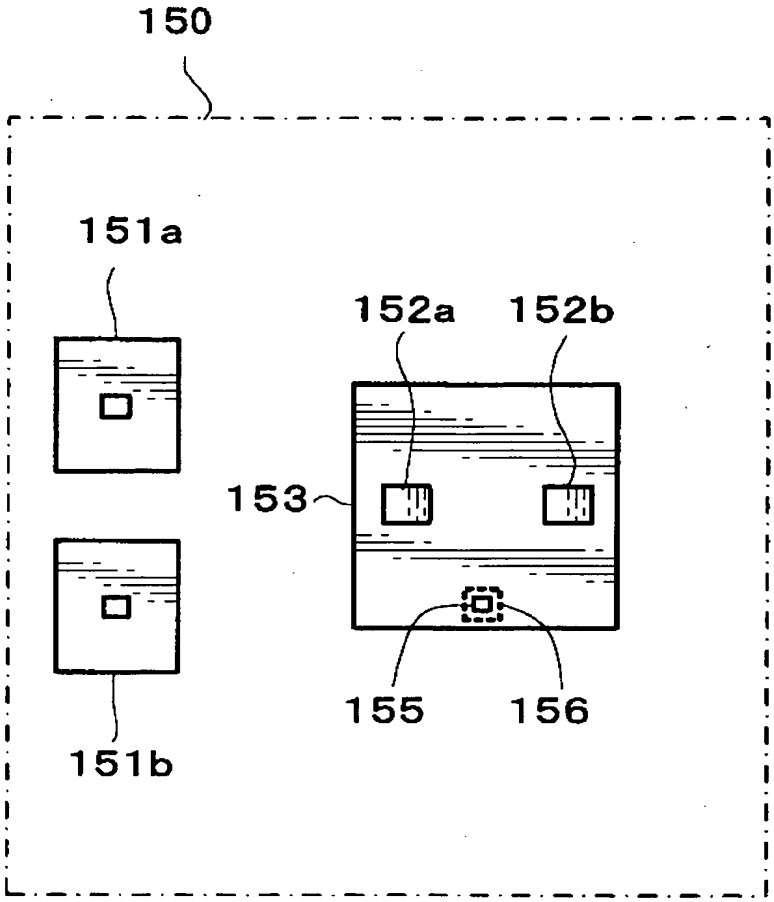


FIG. 11

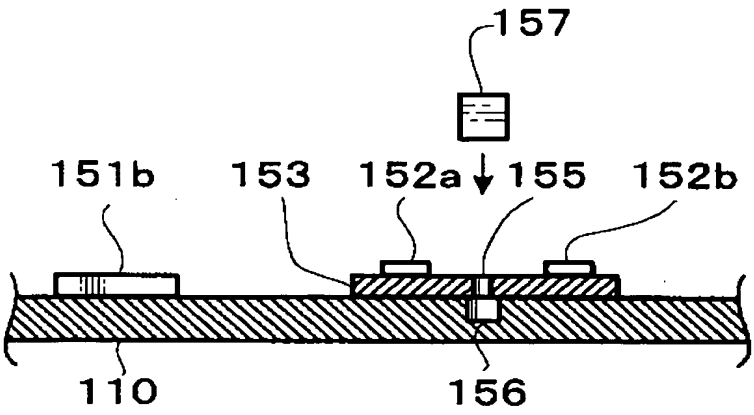


FIG. 12A

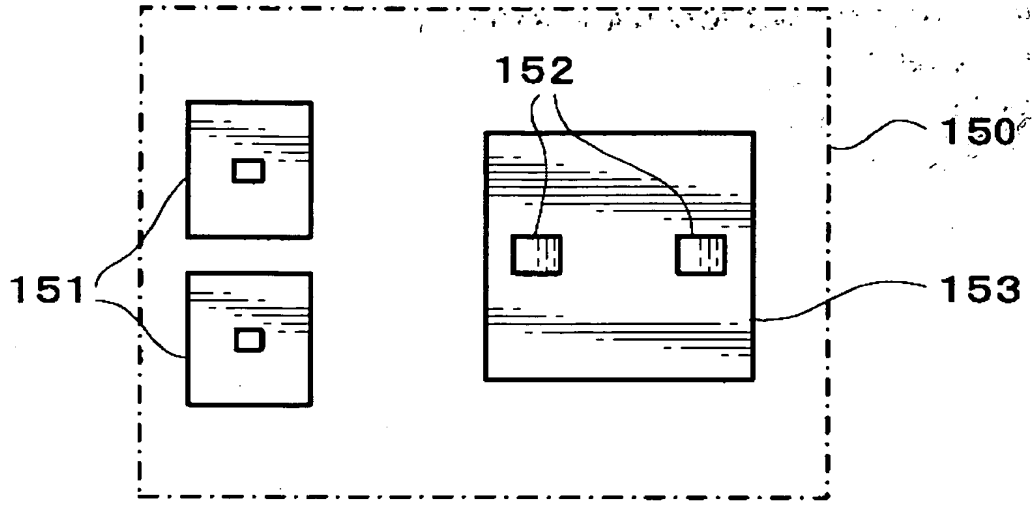


FIG. 12B

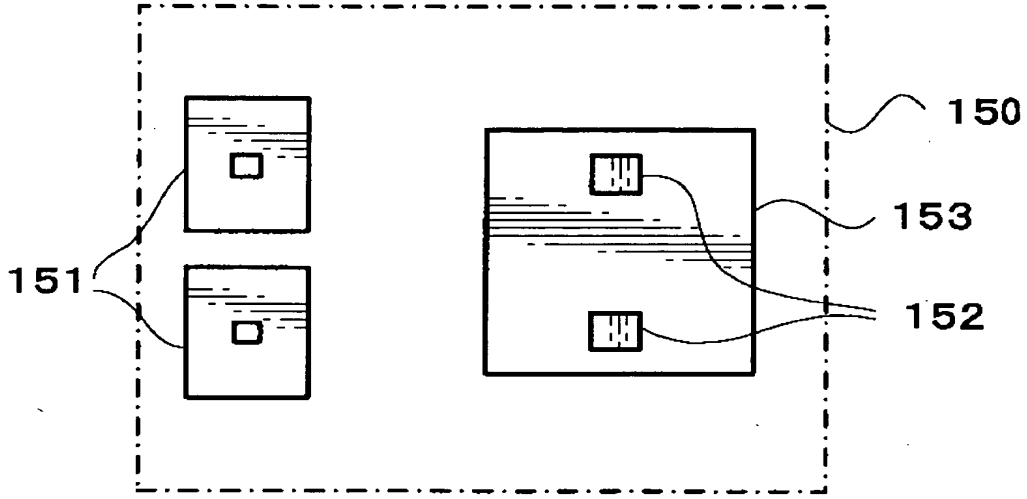


FIG. 12C

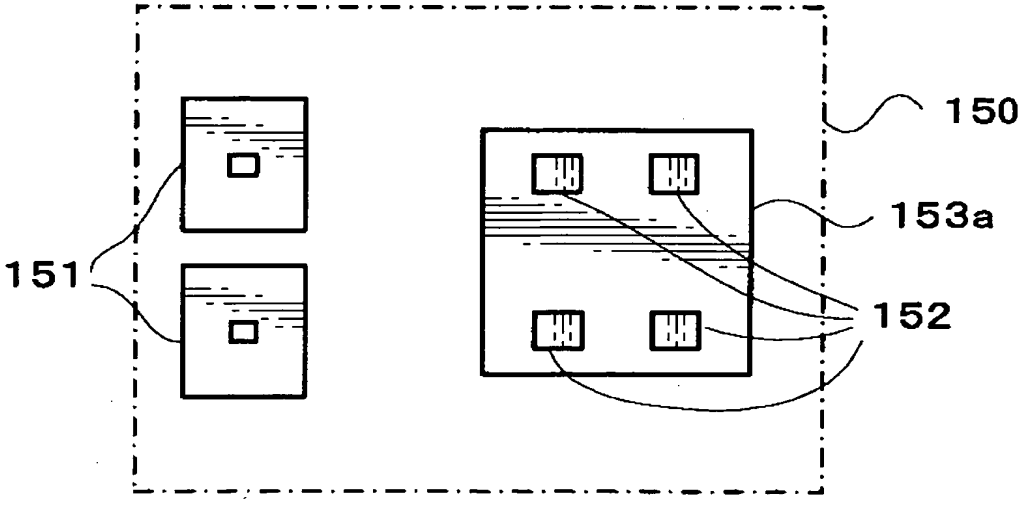


FIG. 13A

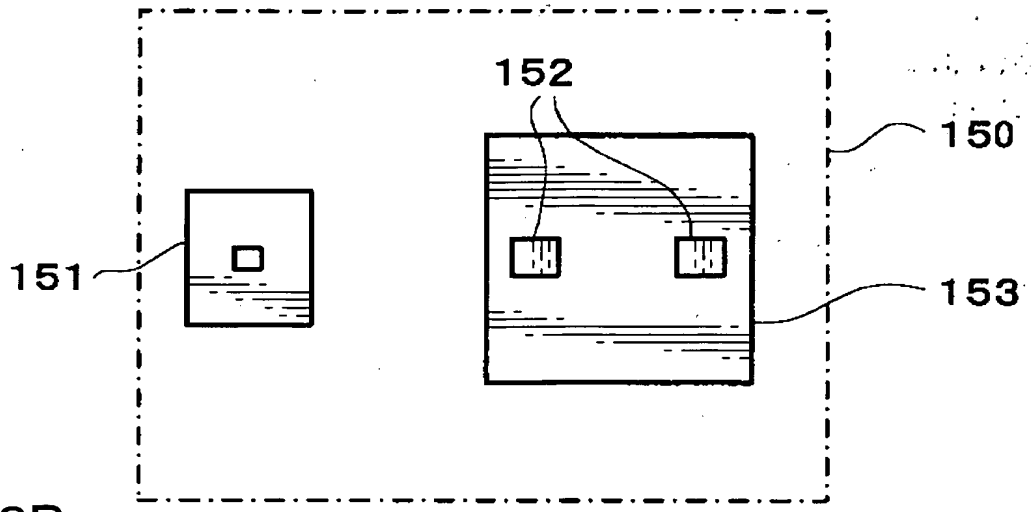


FIG. 13B

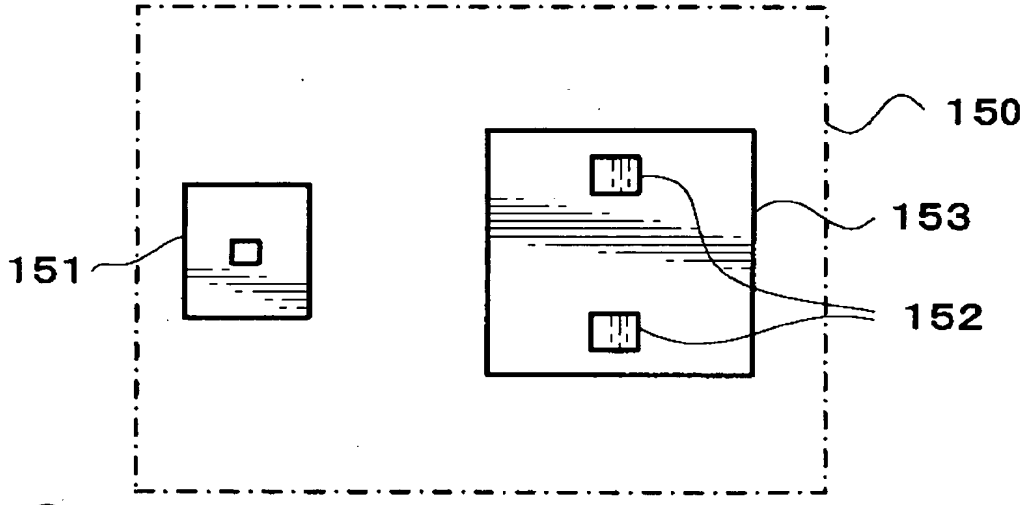
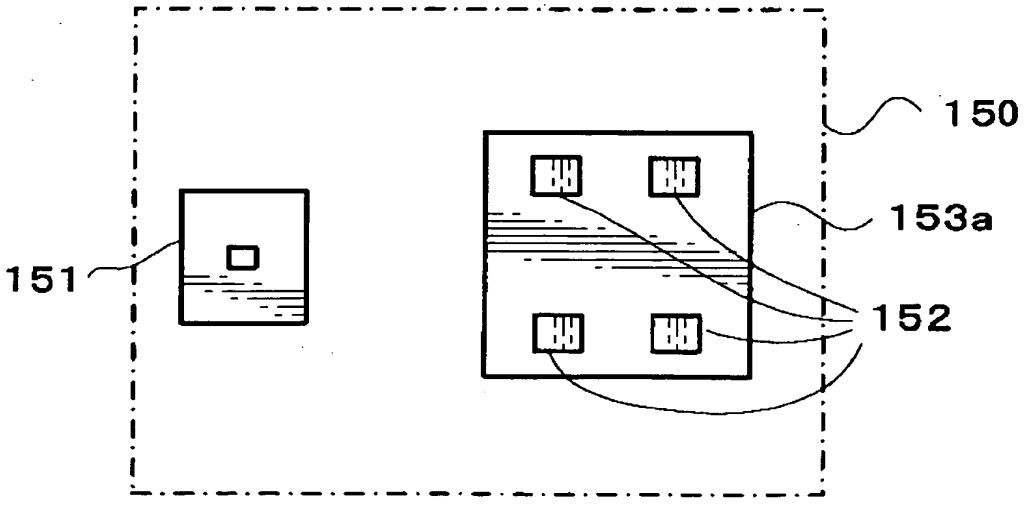


FIG. 13C



สิ่งประดิษฐ์

FIG. 14

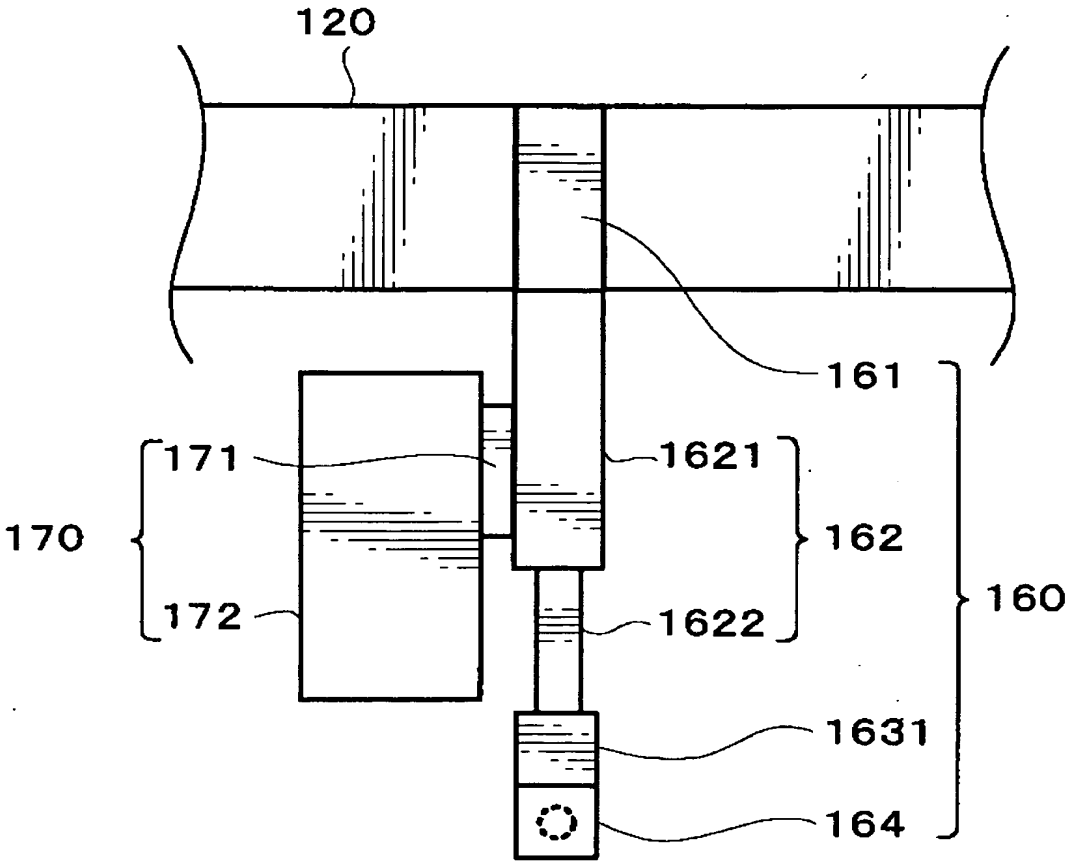


FIG. 15

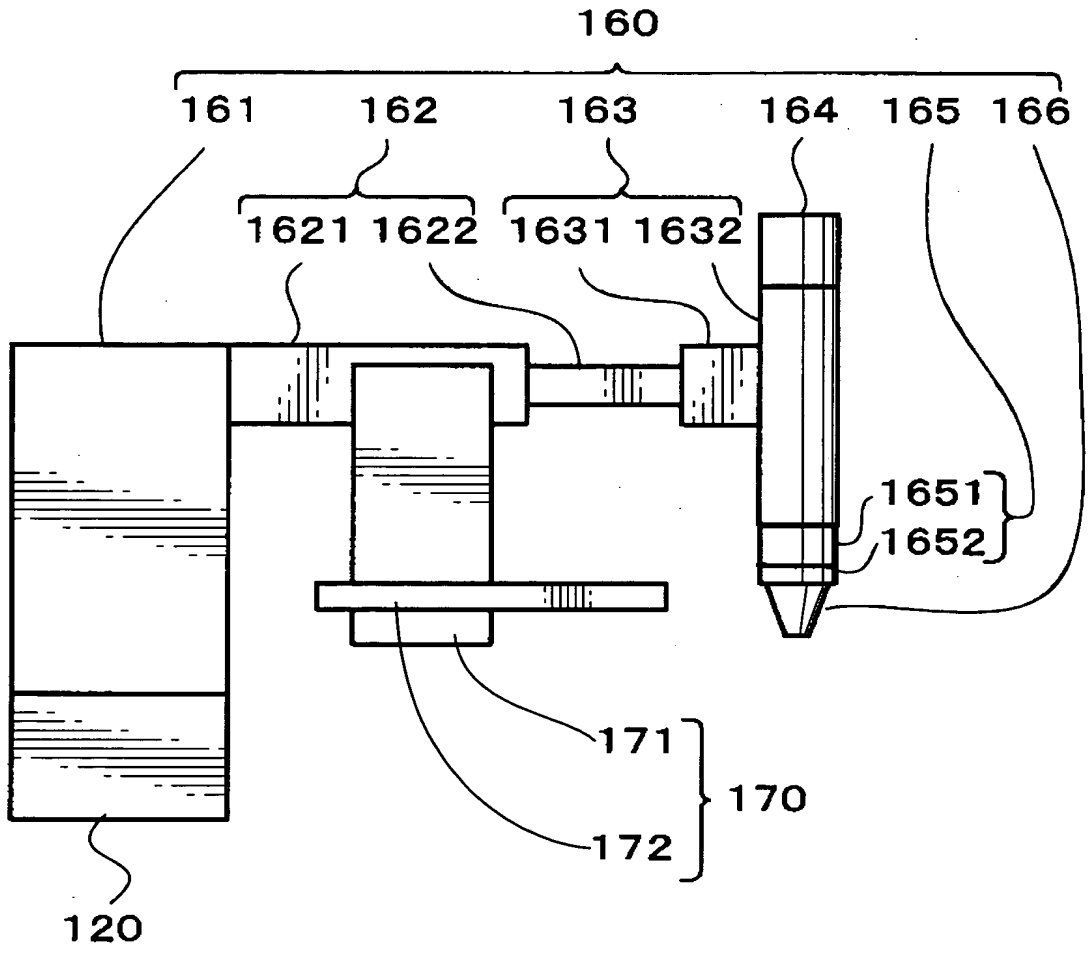

160
161
162
163
164
165
166
1621
1622
1631
1632
1651
1652
171
170
172
120

FIG. 16

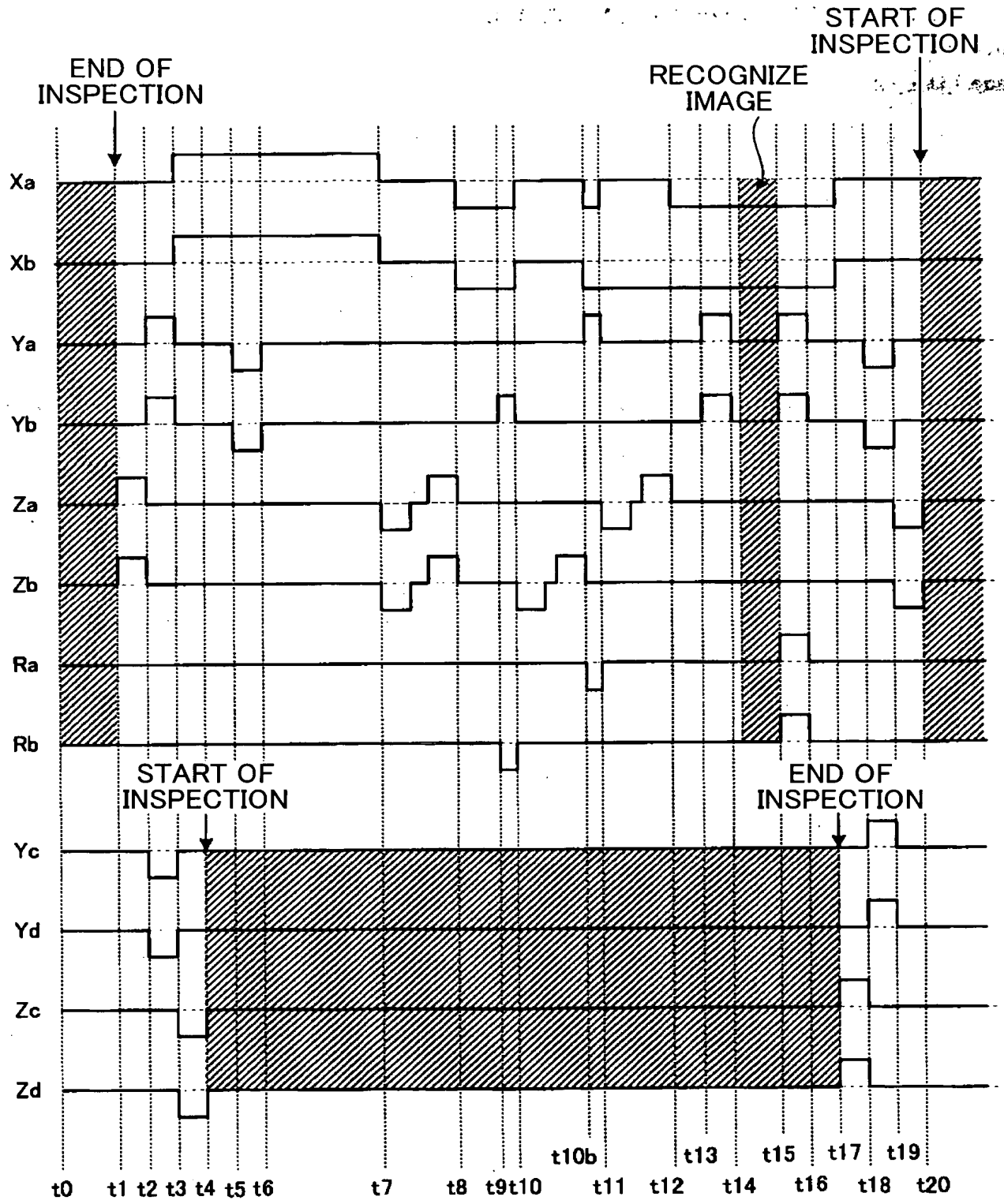

START OF INSPECTION
END OF INSPECTION
RECOGNIZE IMAGE
Xa
Xb
Ya
Yb
Za
Zb
Ra
Rb
START OF INSPECTION
END OF INSPECTION
Yc
Yd
Zc
Zd
t0 t1 t2 t3 t4 t5 t6 t7 t8 t9 t10 t10b t11 t12 t13 t14 t15 t16 t17 t18 t19 t20

FIG. 17

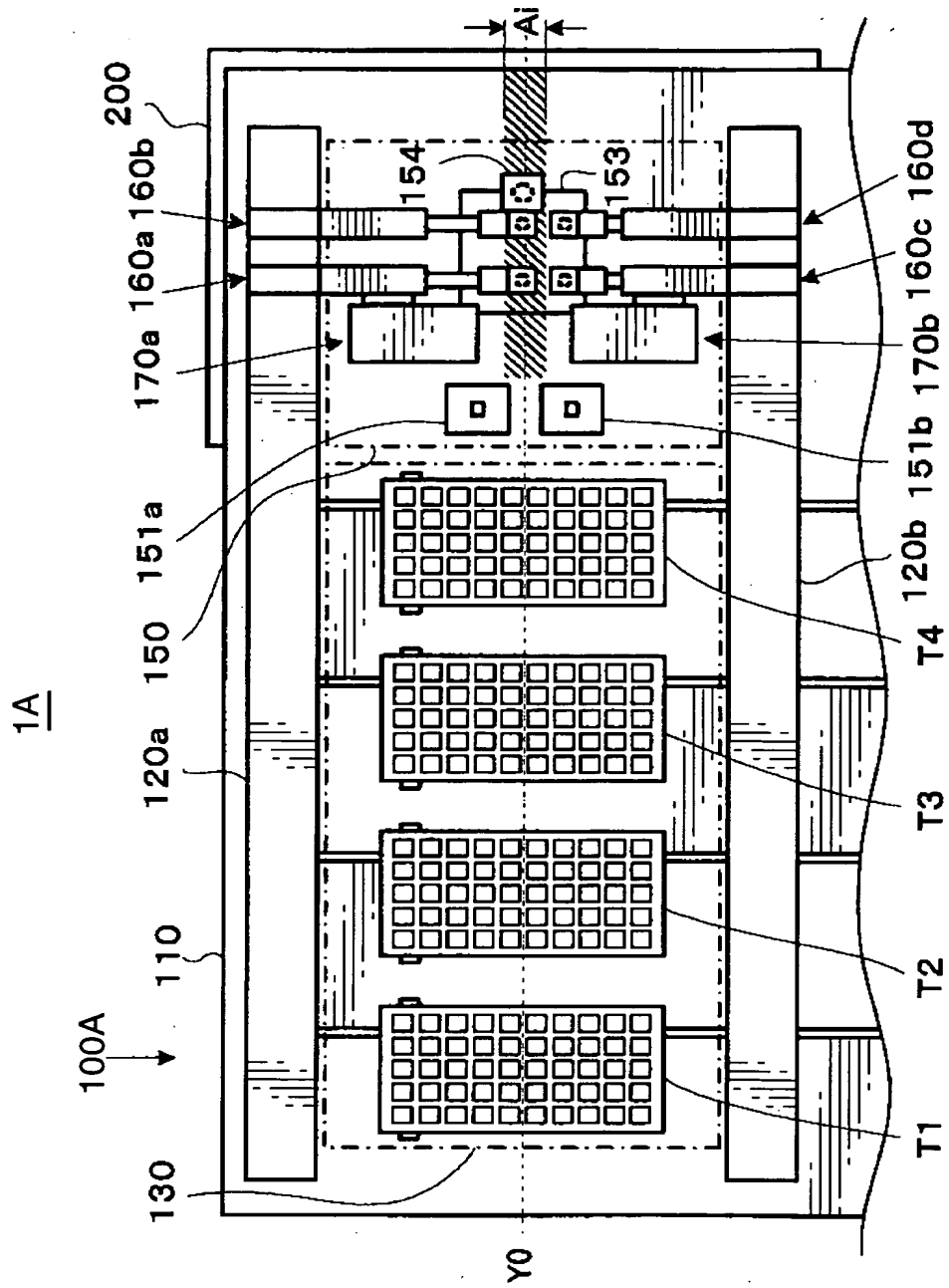

1A
200
160b
160a
170a
151a
150
120a
110
100A
130
Ai
154
153
160d
160c
170b
151b
120b
T4
T3
T2
T1
Y0

FIG. 18

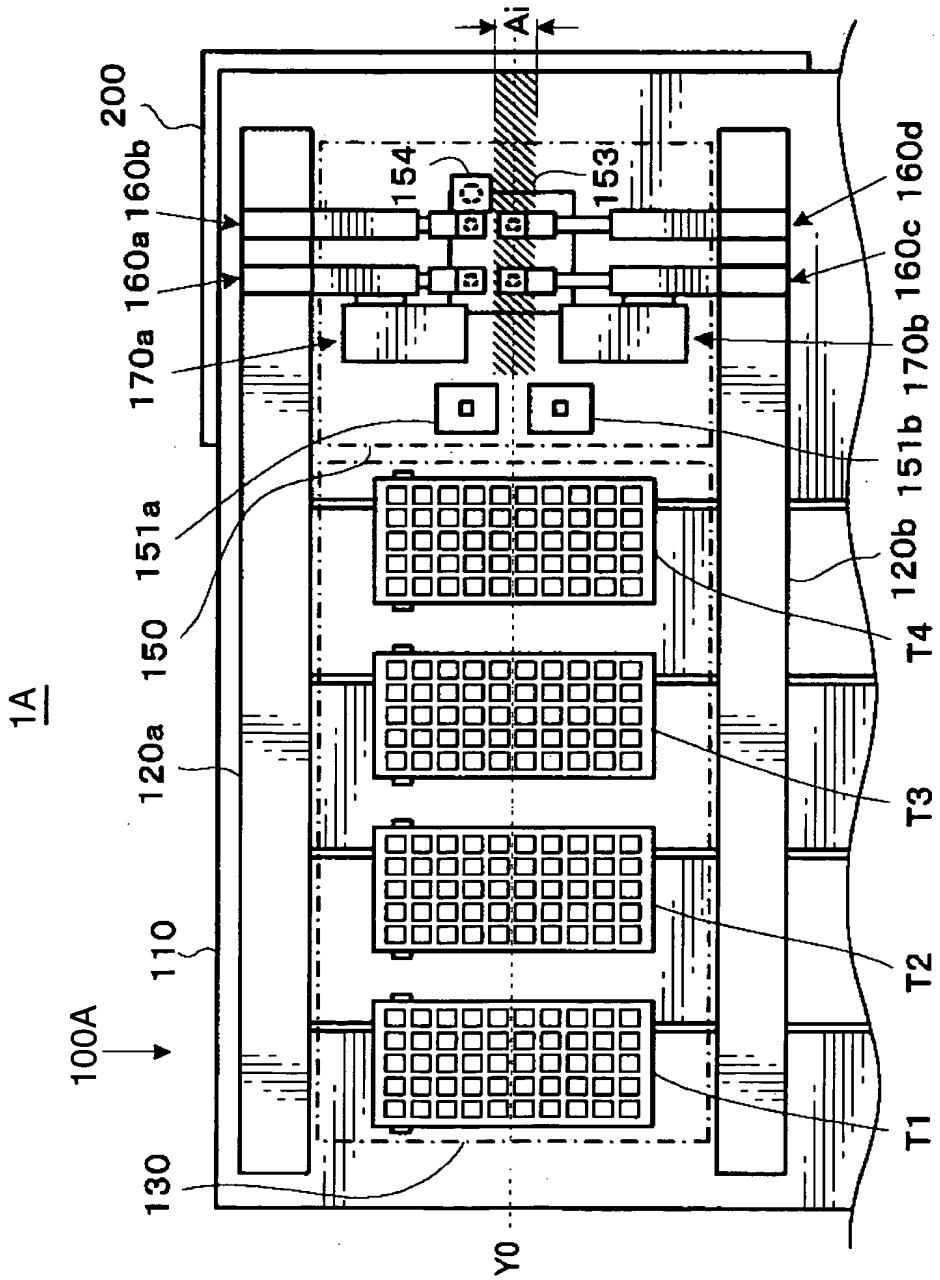

1A
100A
200
160b
160a
170a
151a
150
120a
110
130
Y0
Ai
154
153
160d
160c
170b
151b
120b
T4
T3
T2
T1

FIG. 19

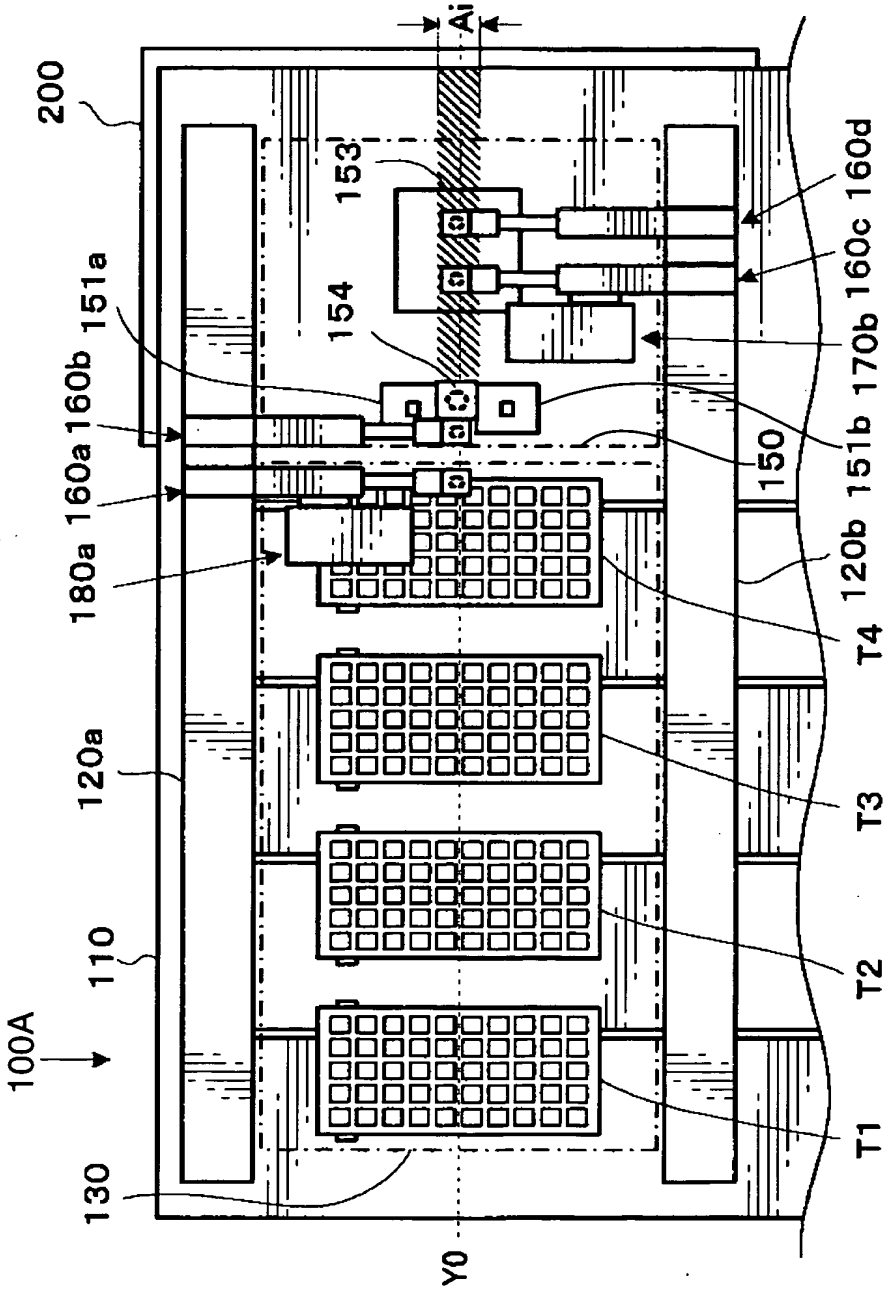

1A
100A
200
110
120a
130
153
154
151a
160b
160a
180a
Ai
Y0
160d
160c
170b
151b
150
120b
T4
T3
T2
T1

FIG. 20

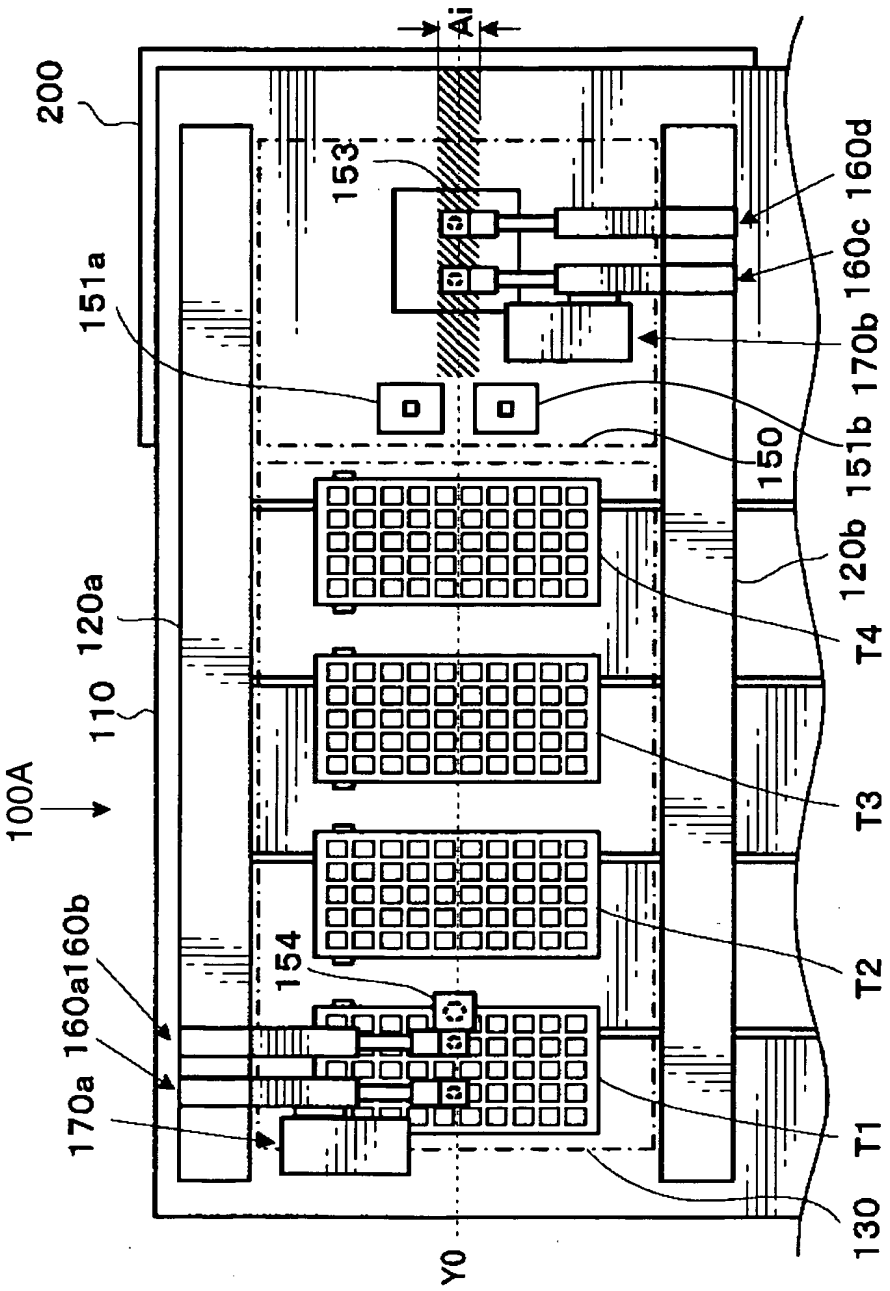

1A
100A
200
Ai
153
151a
160d
160c
170b
151b
150
120b
T4
120a
110
T3
T2
154
160b
160a
170a
T1
130
Y0

FIG. 21

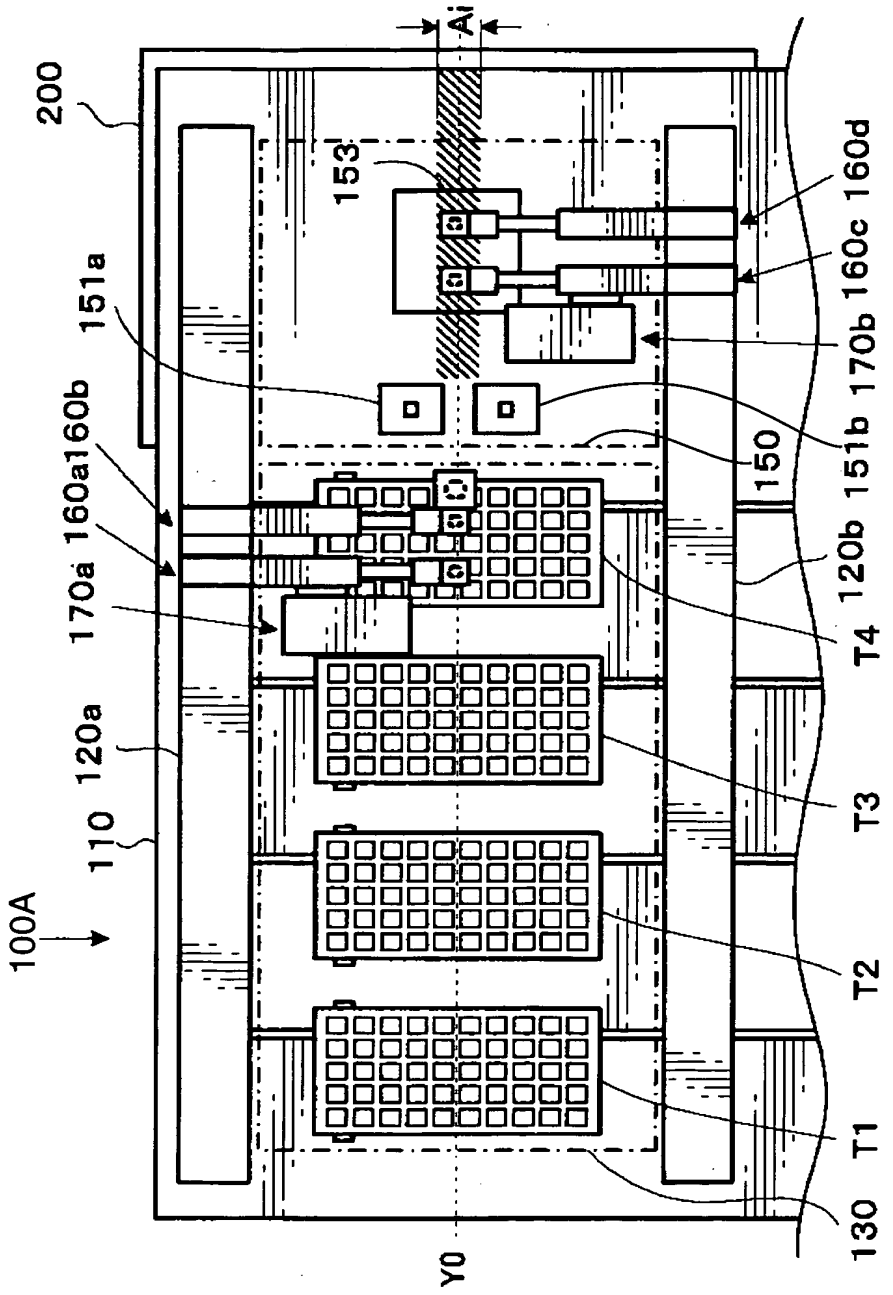

1A
100A
200
110
120a
120b
130
150
151a
151b
153
160a
160b
160c
160d
170a
170b
Ai
Y0
T1
T2
T3
T4

FIG. 22

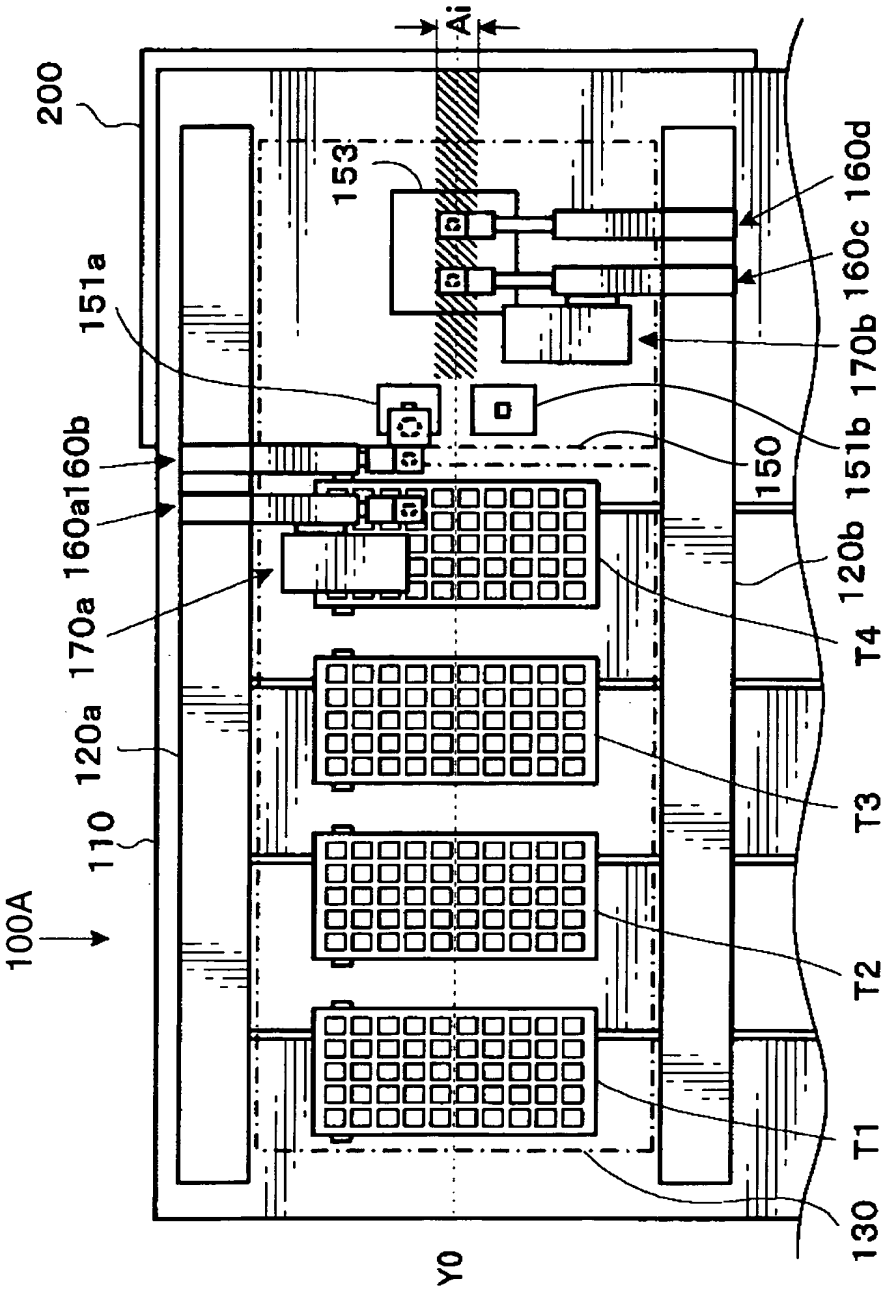

1A
200
153
Ai
151a
160d
160c
170b
160b
160a
170a
120a
110
100A
150
151b
120b
T4
T3
T2
T1
130
Y0

FIG. 23

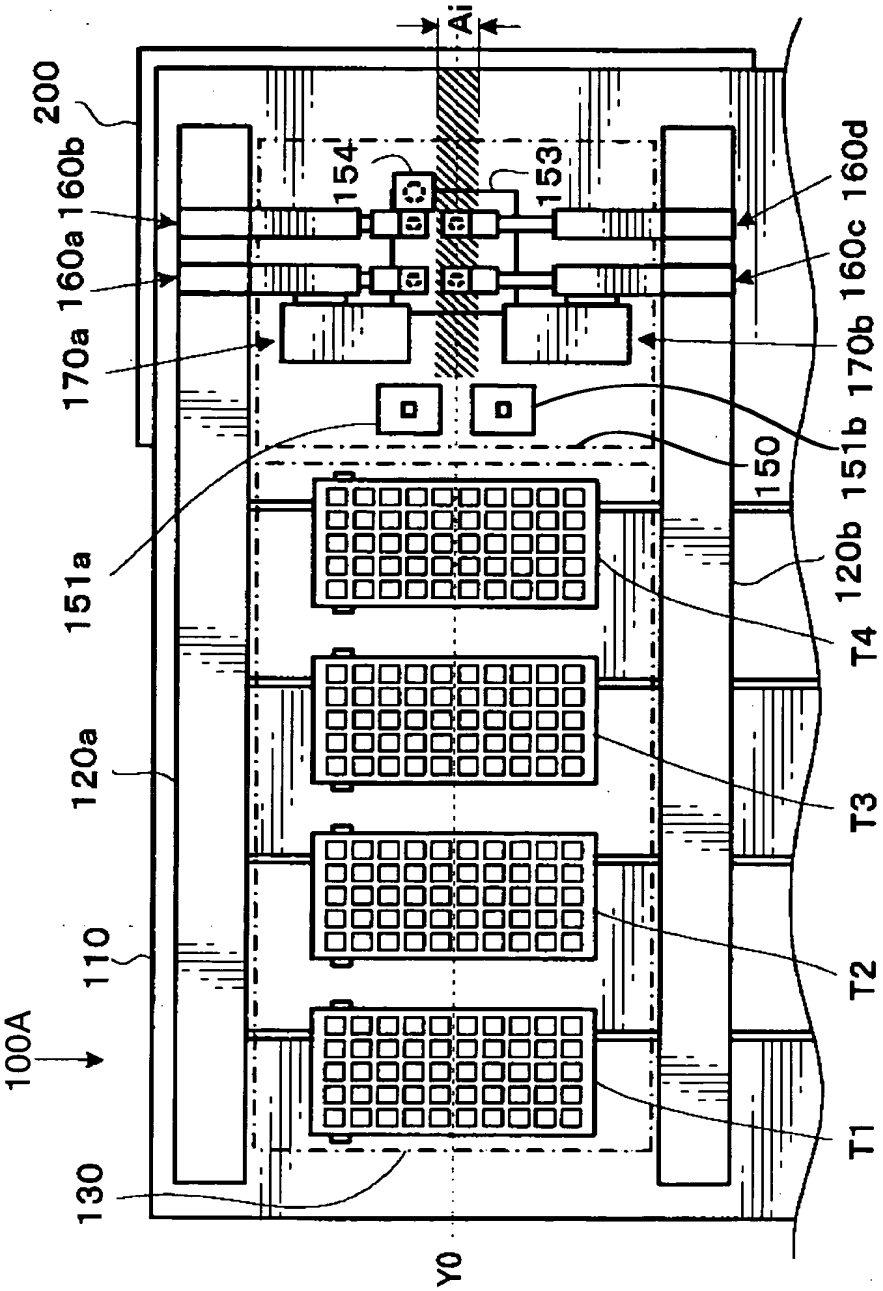

1A
200
160b
160a
170a
151a
120a
110
100A
130
Ai
154
153
160d
160c
170b
151b
150
120b
T4
T3
T2
T1
Y0

FIG. 24

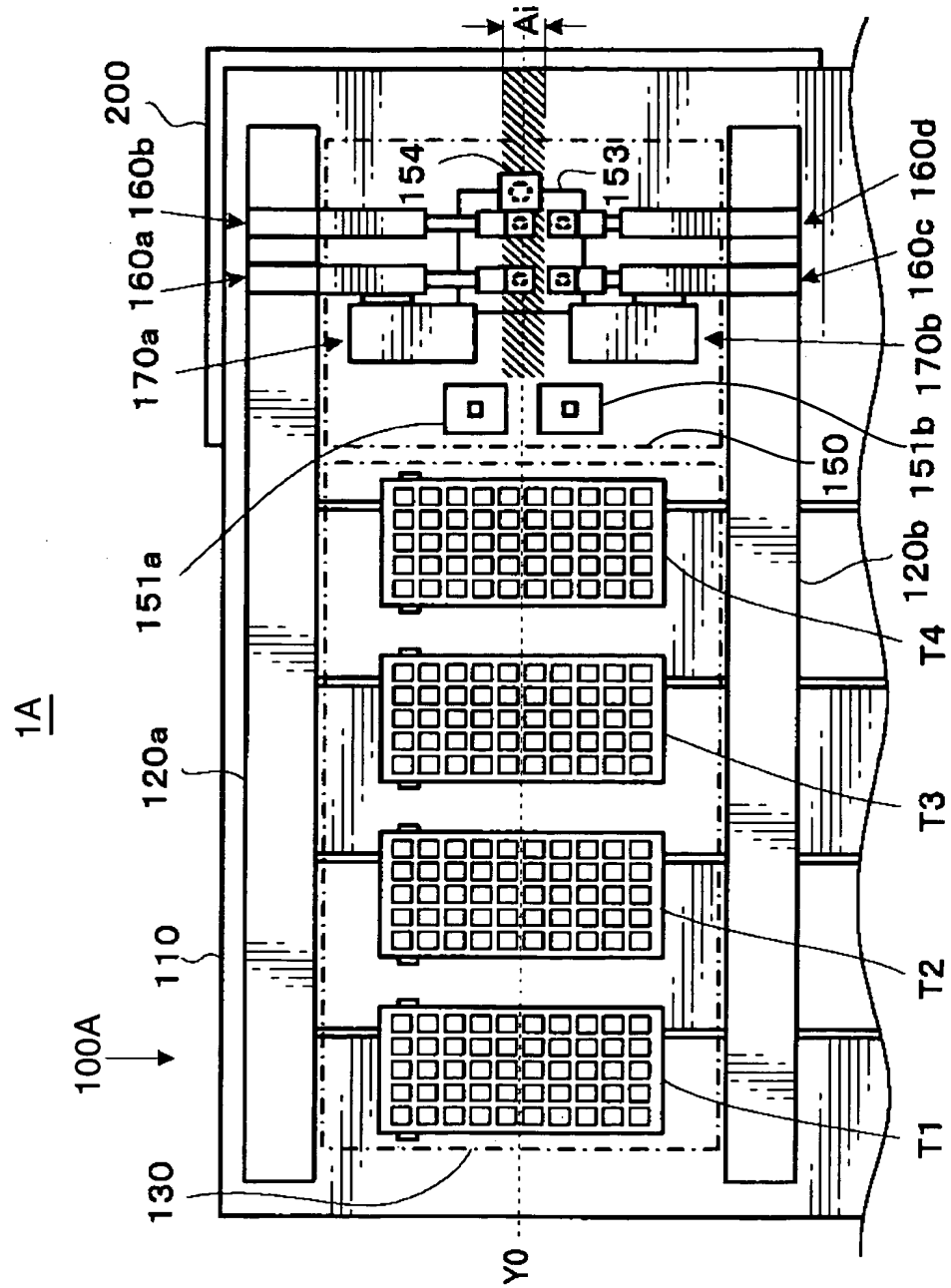

1A
200
160b
160a
170a
151a
120a
110
100A
130
Y0
Ai
154
153
160d
160c
170b
151b
150
120b
T4
T3
T2
T1

FIG. 25

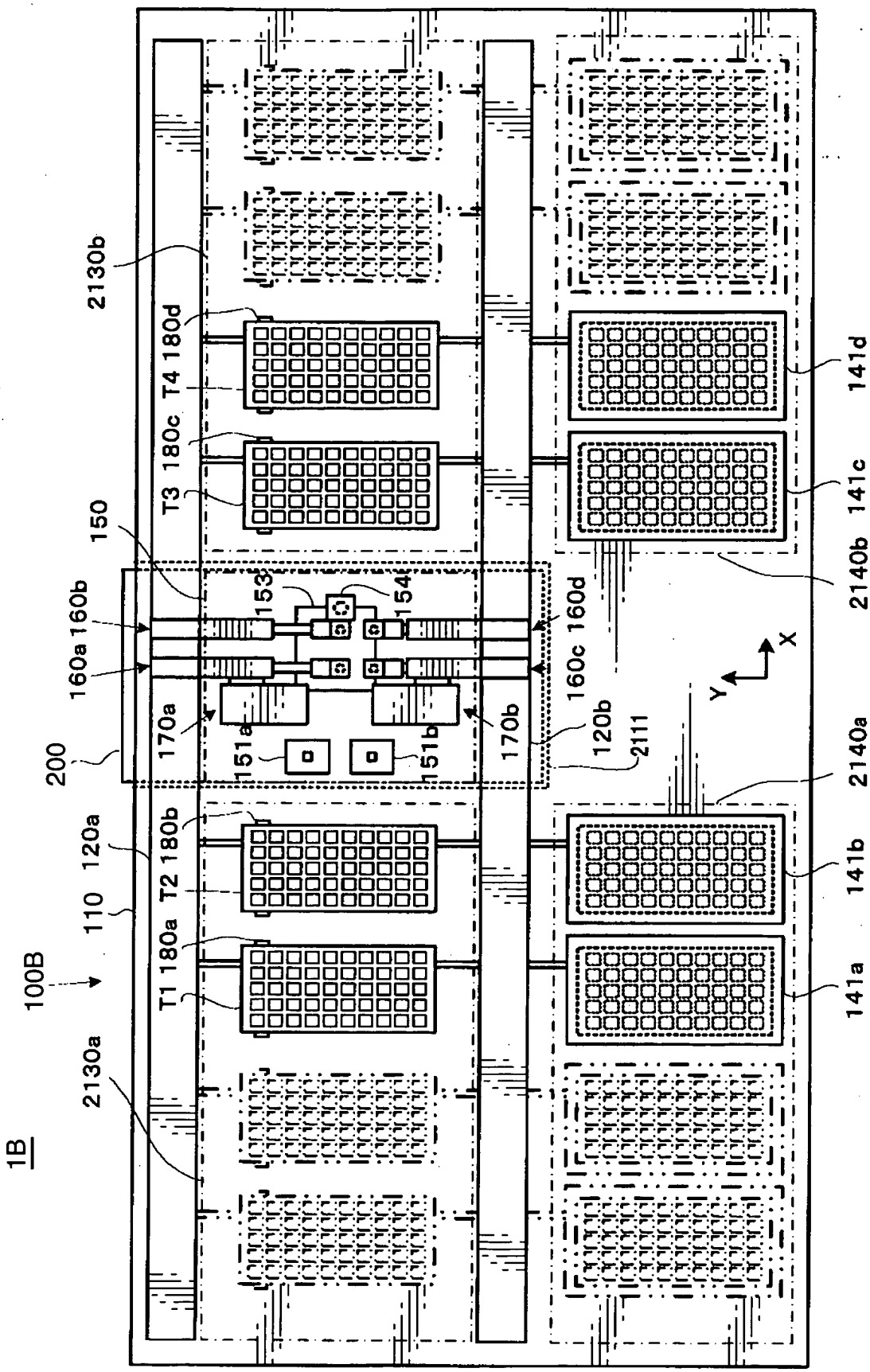

1B
100B
2130b
T4 180d
T3 180c
150
153
154
160a 160b
160c 160d
170a
170b
151a
151b
120b
2111
200
120a
110
T2 180b
T1 180a
2130a
141d
141c
2140b
141b
2140a
141a
X
Y

FIG. 26

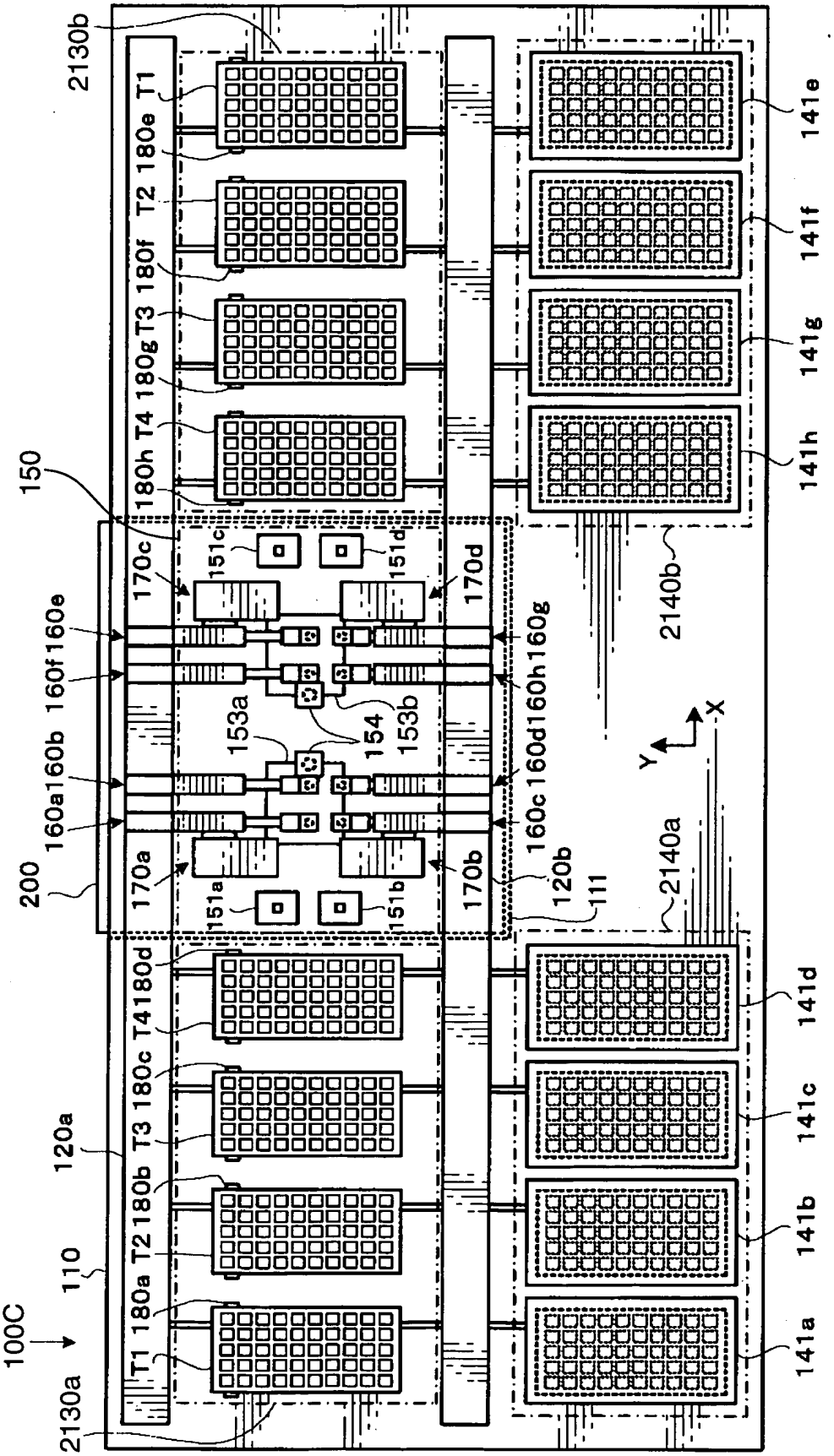

1C
100C
2130b
2130a
110
120a
120b
111
150
200
2140a
2140b
X
Y
T1
T2
T3
T4
180a
180b
180c
180d
180e
180f
180g
180h
141a
141b
141c
141d
141e
141f
141g
141h
151a
151b
151c
151d
153a
153b
154
160a
160b
160c
160d
160e
160f
160g
160h
170a
170b
170c
170d

FIG. 27

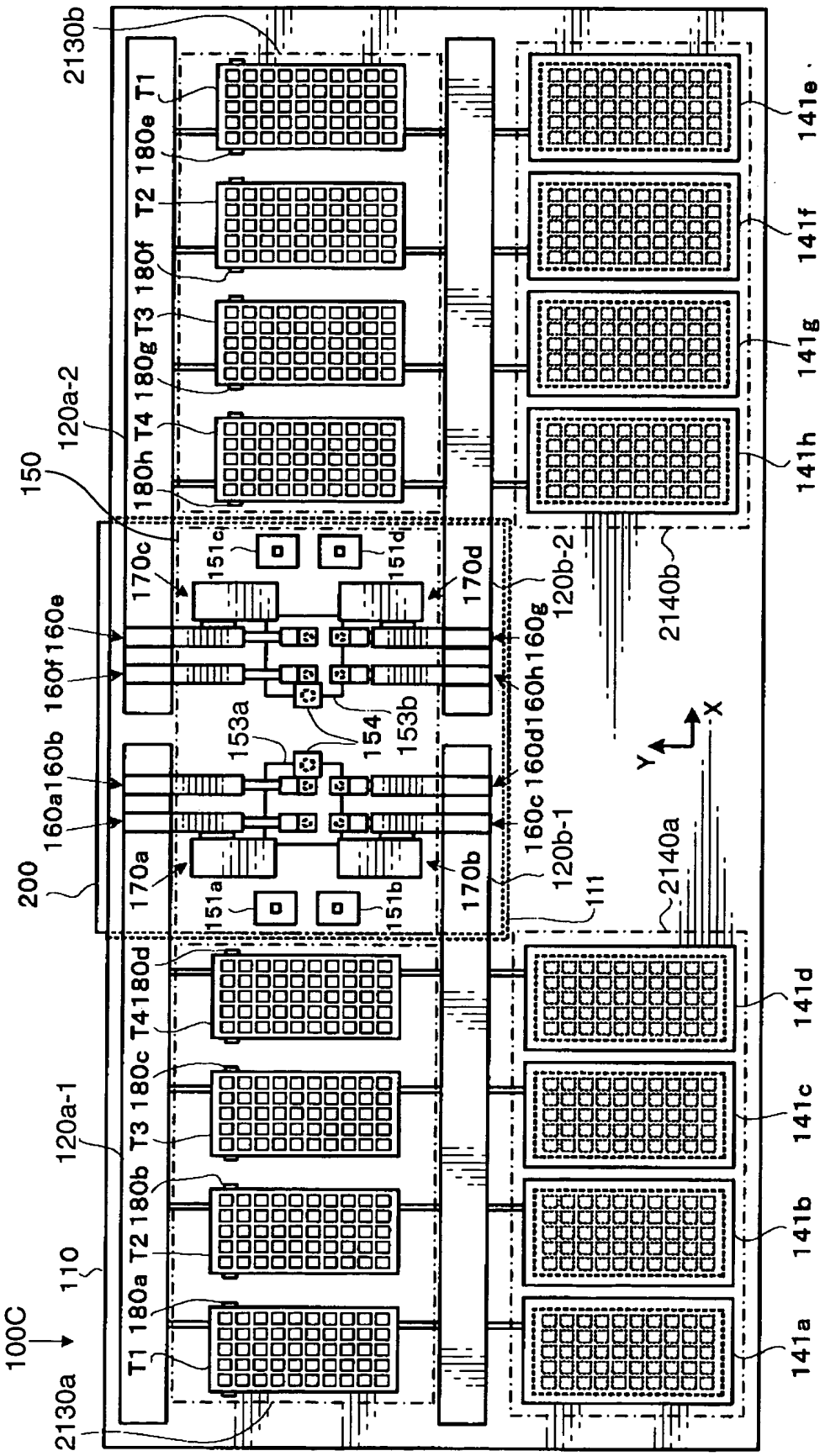

1C
100C
110
200
111
150
2130a
2130b
2140a
2140b
120a-1
120a-2
120b-1
120b-2
T1
T2
T3
T4
180a
180b
180c
180d
180e
180f
180g
180h
141a
141b
141c
141d
141e
141f
141g
141h
151a
151b
151c
151d
153a
153b
154
160a
160b
160c
160d
160e
160f
160g
160h
170a
170b
170c
170d
X
Y

FIG. 28

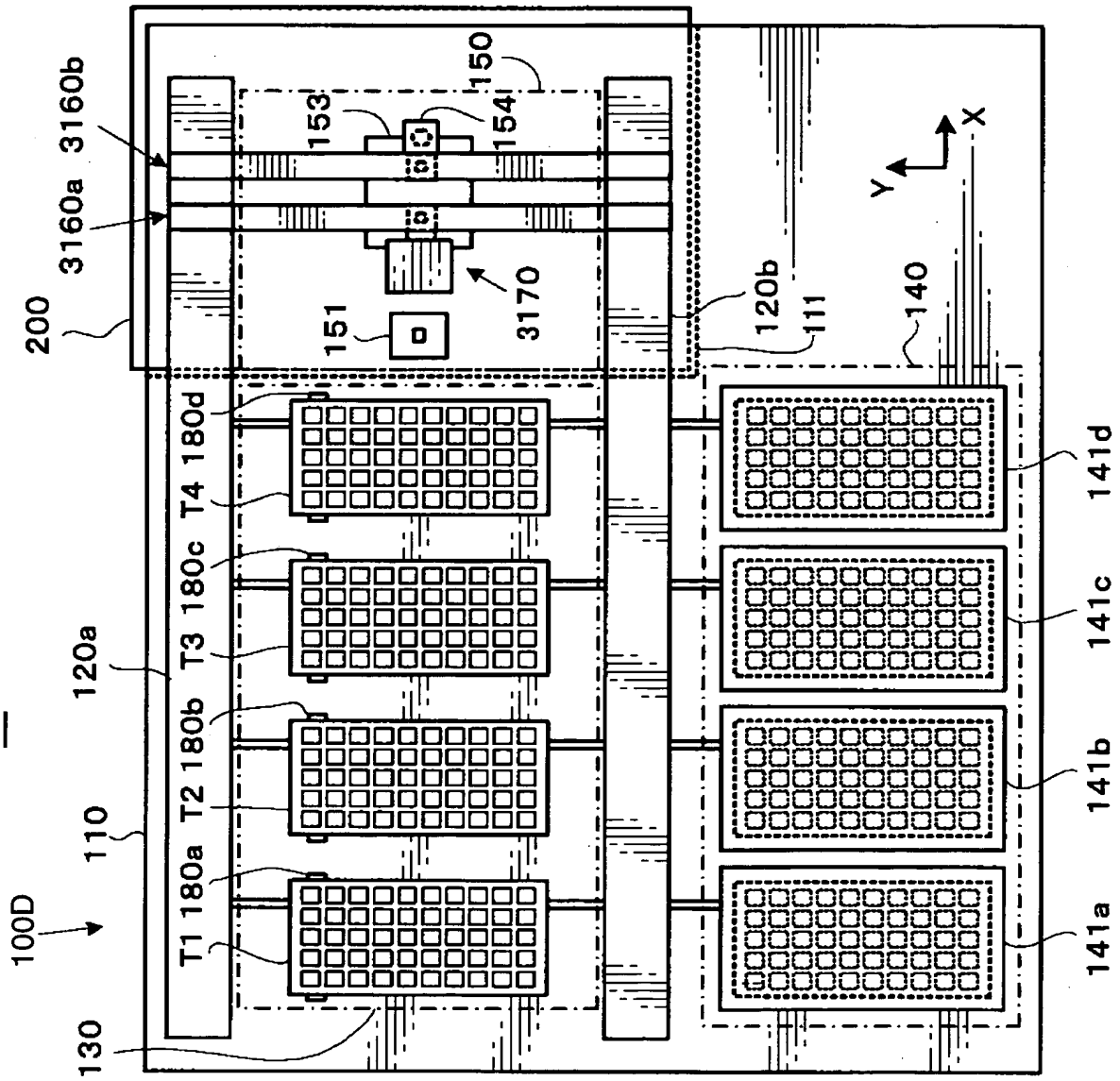

1D
100D
200
3160b
3160a
150
153
154
151
3170
120b
111
140
Y
X
180d
T4
180c
T3
180b
T2
180a
T1
120a
110
130
141d
141c
141b
141a

FIG. 29

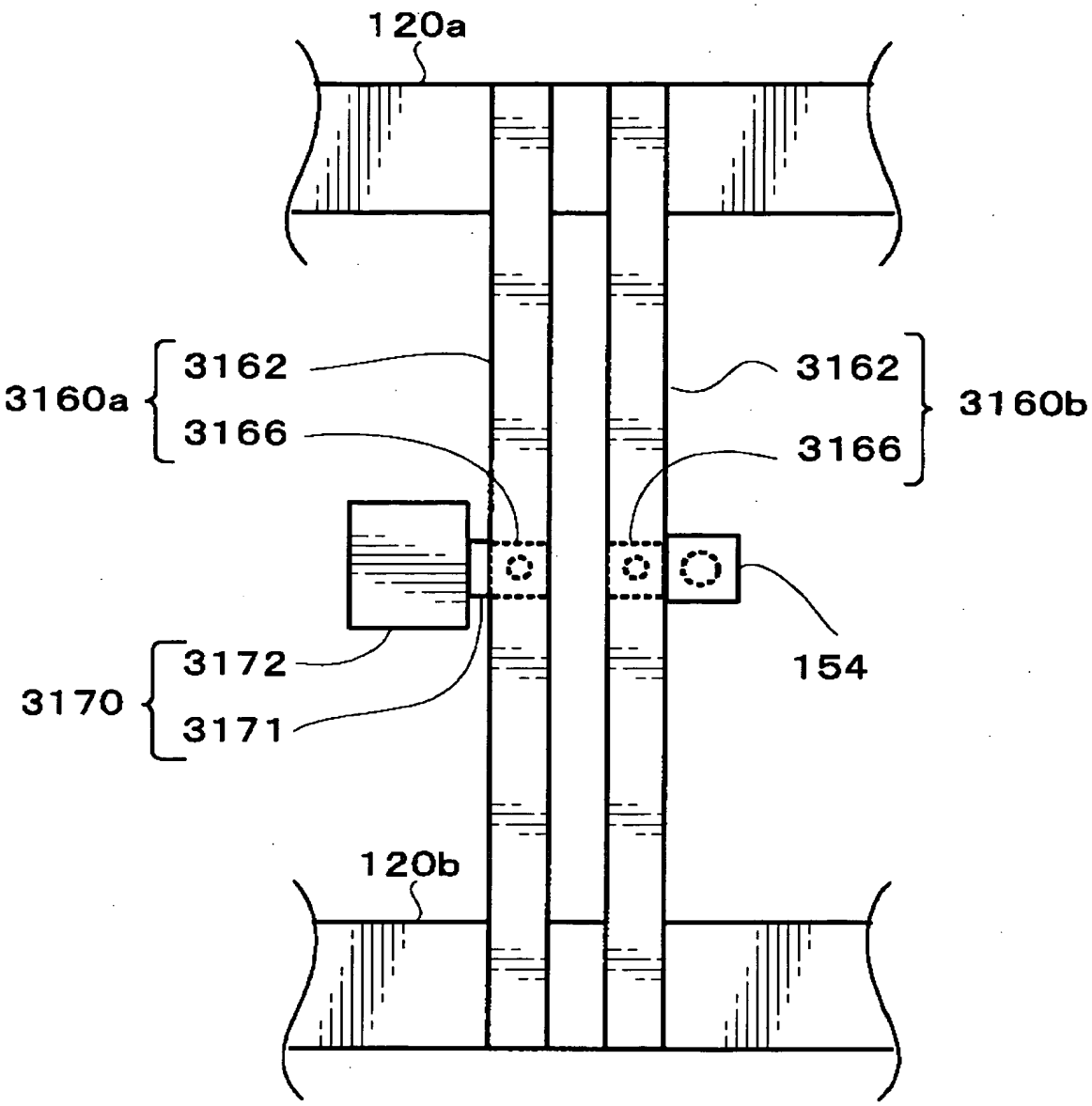


FIG. 30

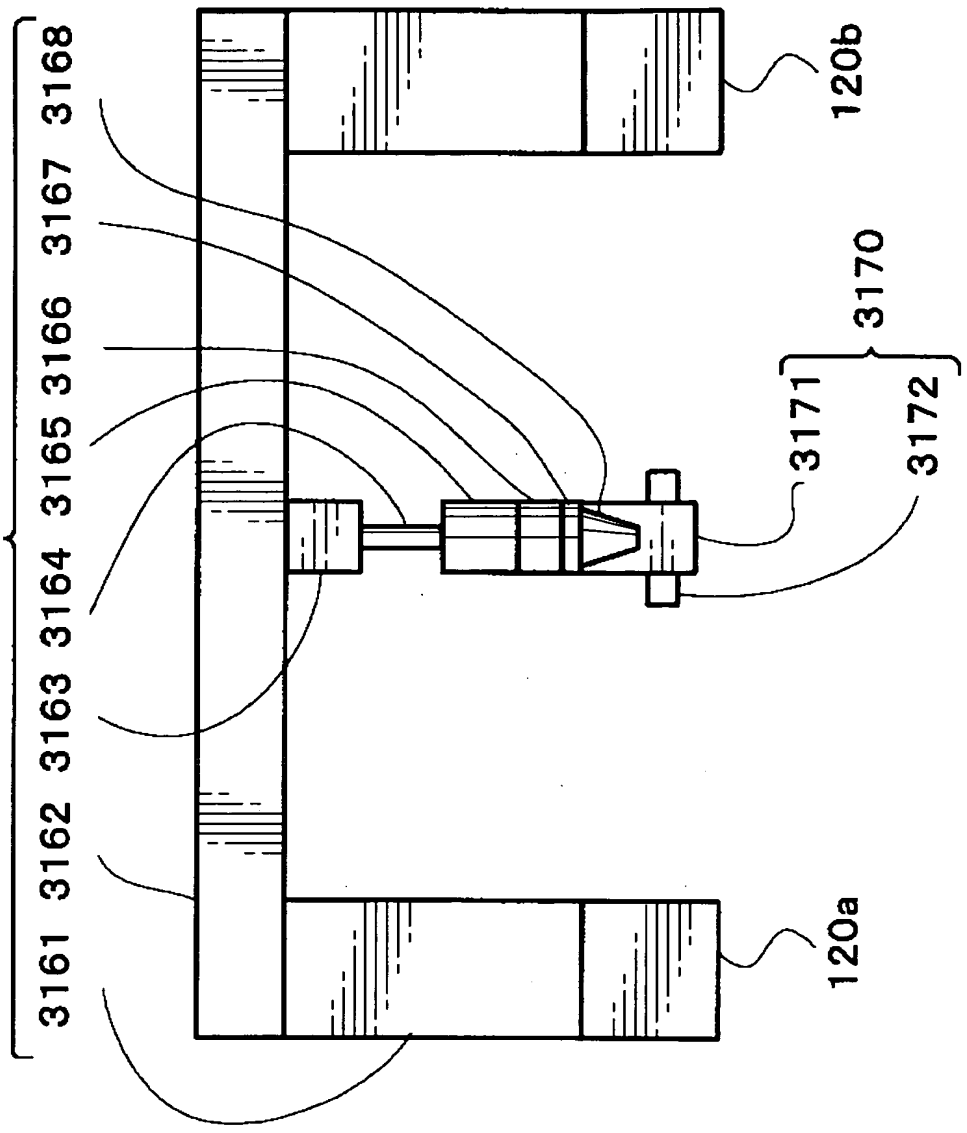

3160
3161
3162
3163
3164
3165
3166
3167
3168
3170
3171
3172
120a
120b

FIG. 31

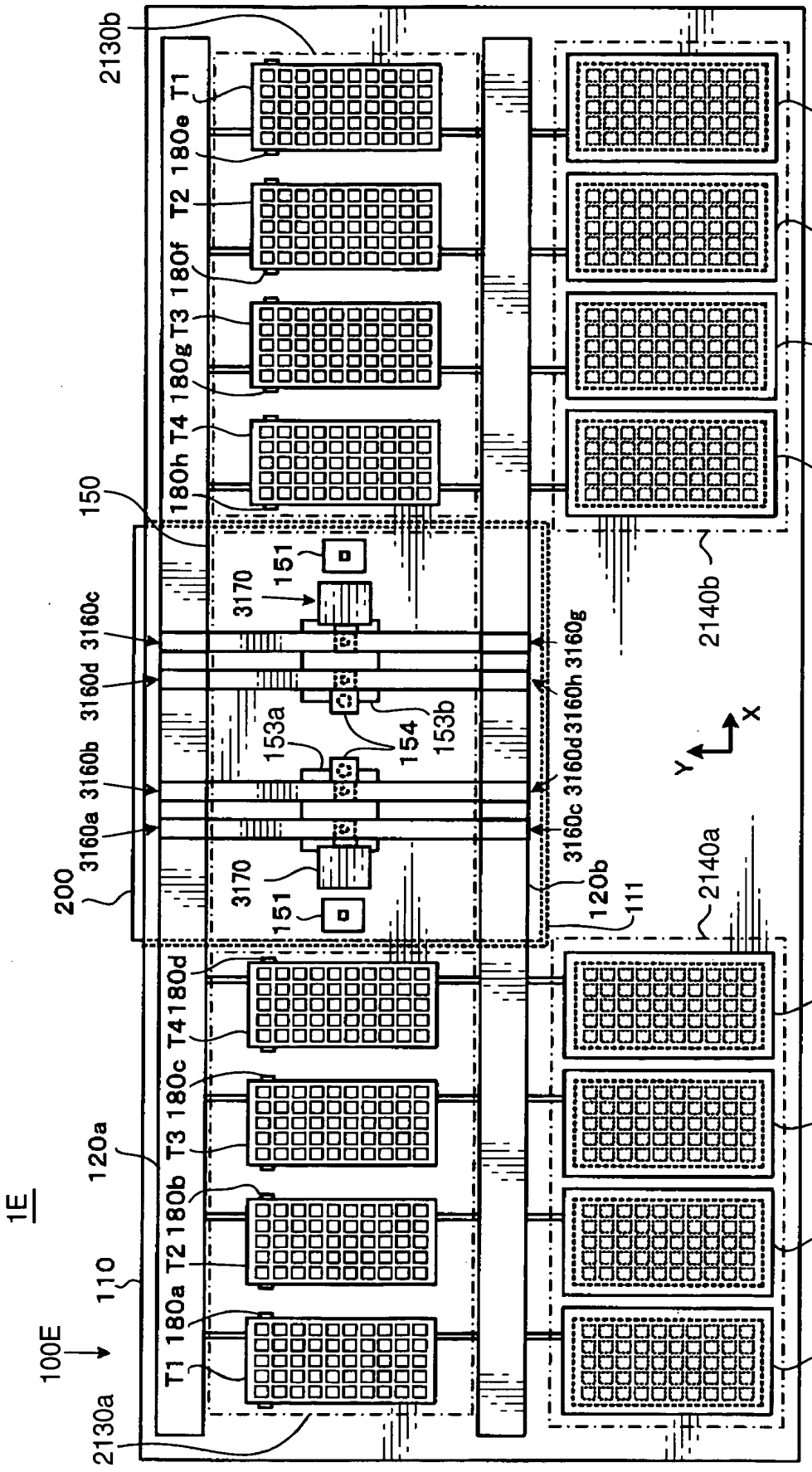

1E
100E
2130b
2130a
110
120a
120b
111
200
150
T1 180a
T2 180b
T3 180c
T4 180d
T1 180e
T2 180f
T3 180g
T4 180h
141a
141b
141c
141d
141e
141f
141g
141h
2140a
2140b
3160a
3160b
3160c
3160d
3160g
3160h
3170
151
153a
153b
154
X
Y

FIG. 32

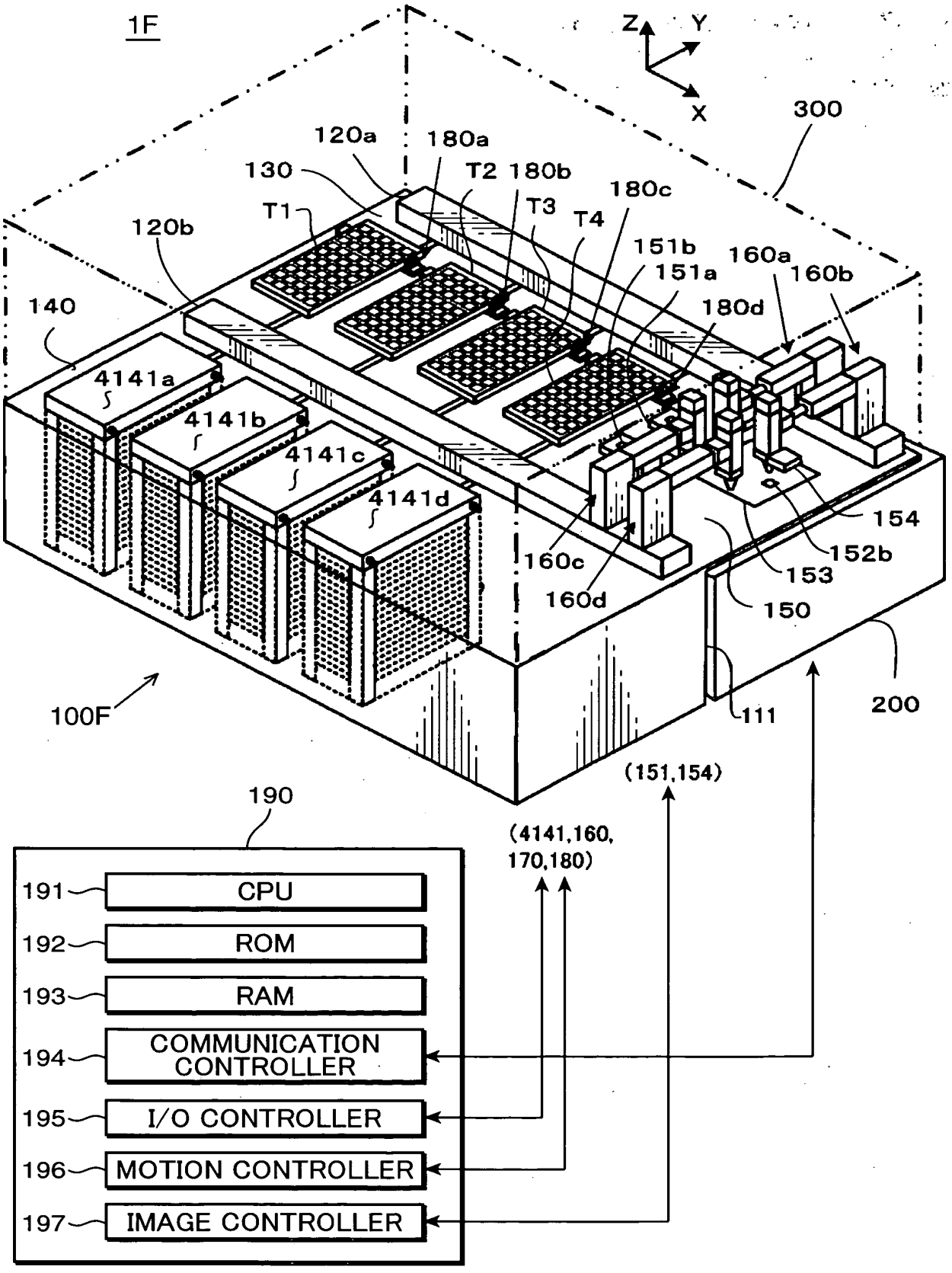

1F
Z
Y
X
300
120a
180a
130
T2
180b
T1
T3
T4
180c
120b
151b
151a
160a
160b
140
180d
4141a
4141b
4141c
4141d
154
152b
160c
153
160d
150
100F
111
200
(151,154)
190
(4141,160,
170,180)
191
CPU
192
ROM
193
RAM
194
COMMUNICATION
CONTROLLER
195
I/O CONTROLLER
196
MOTION CONTROLLER
197
IMAGE CONTROLLER

FIG. 33

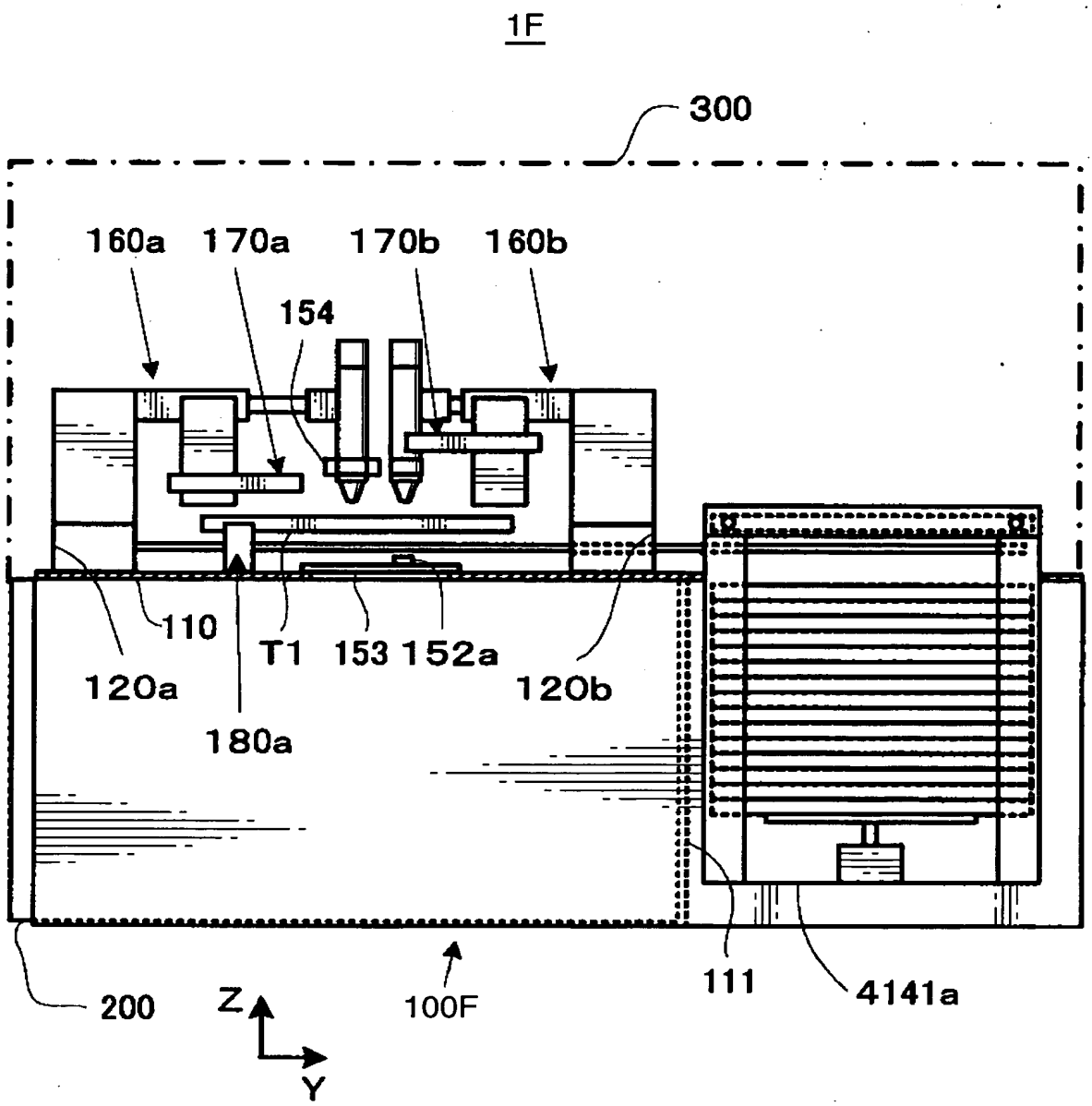

1F
300
160a
170a
170b
160b
154
110
T1
153
152a
120a
120b
180a
200
Z
Y
100F
111
4141a

FIG. 34

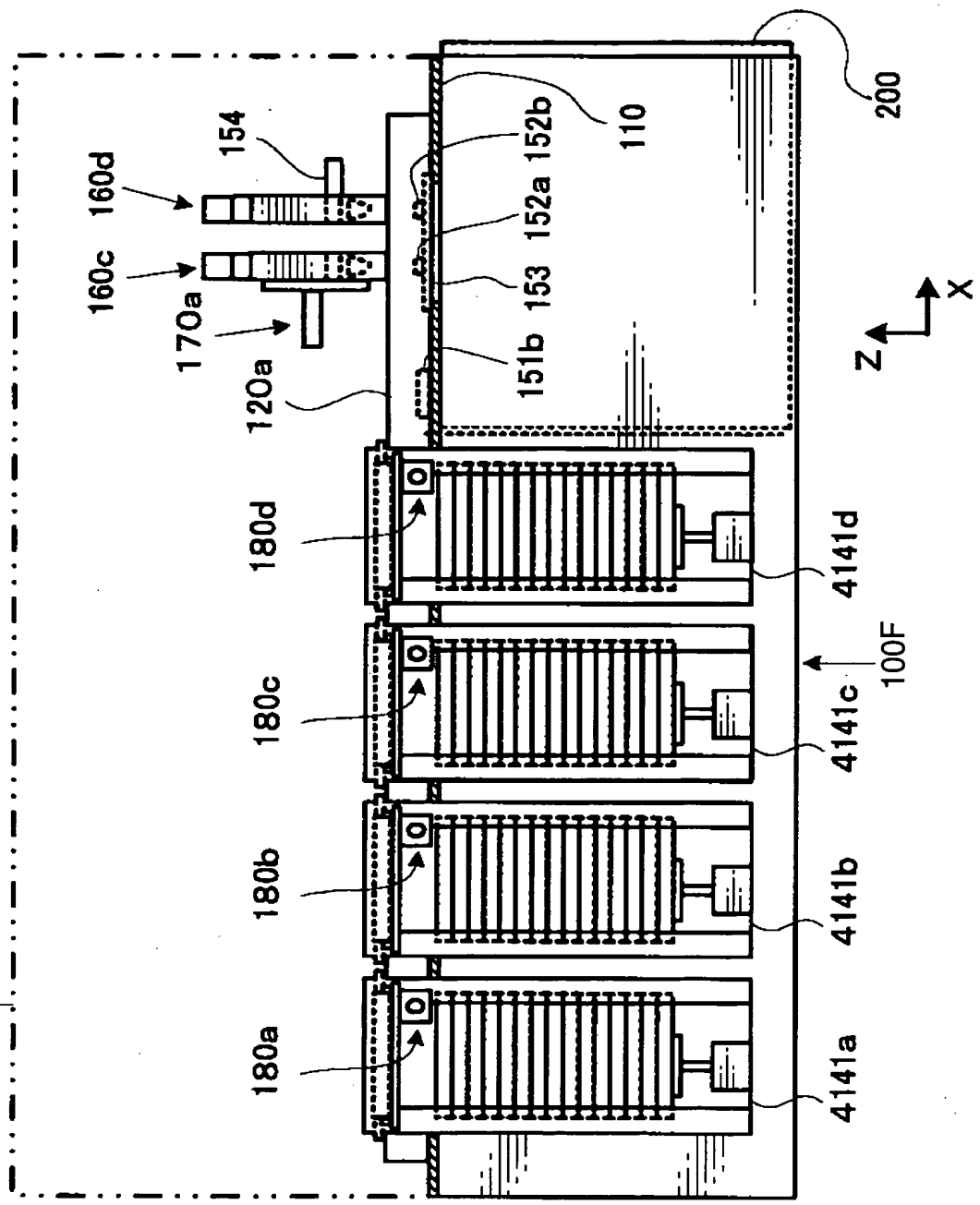

1F
300
180a
180b
180c
180d
4141a
4141b
4141c
4141d
100F
170a
160c
160d
154
153
151b
152a
152b
110
120a
200
Z
X

FIG. 35

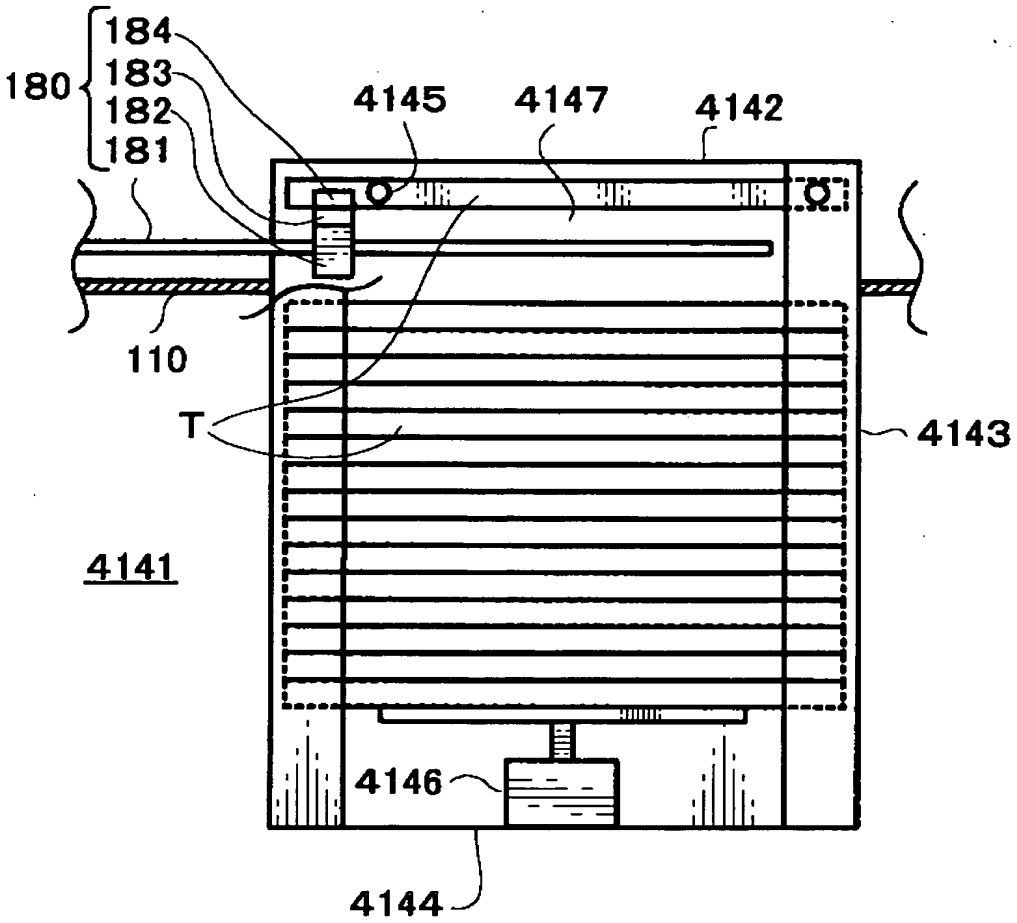


FIG. 36

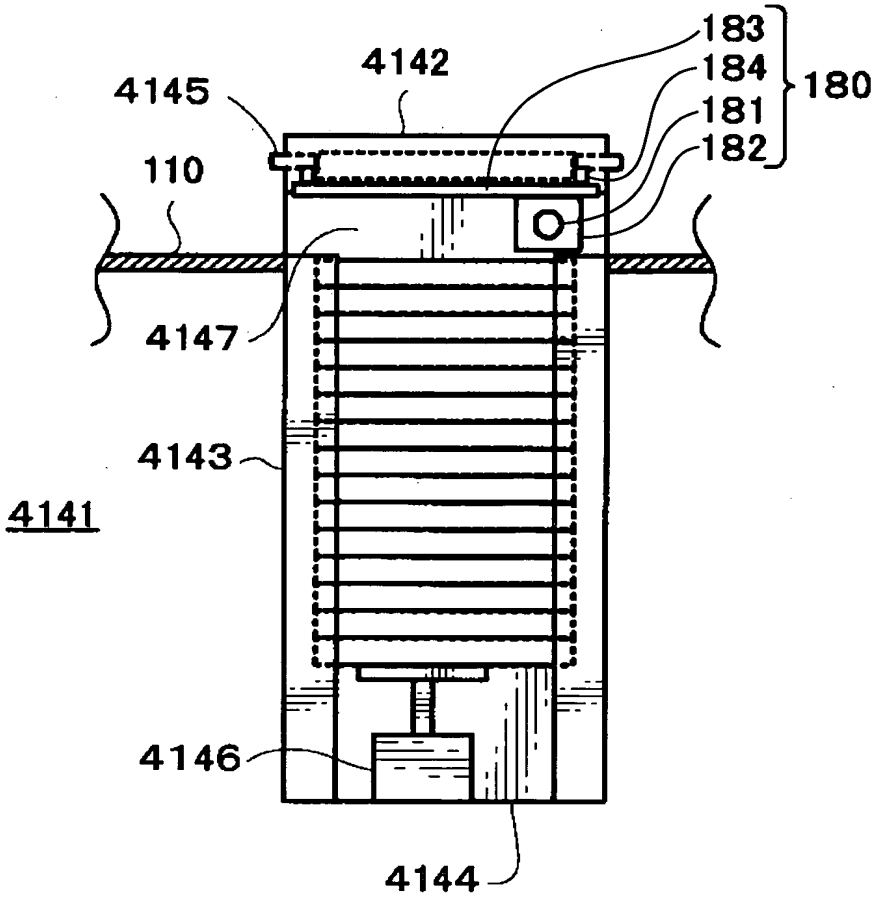


FIG. 37A

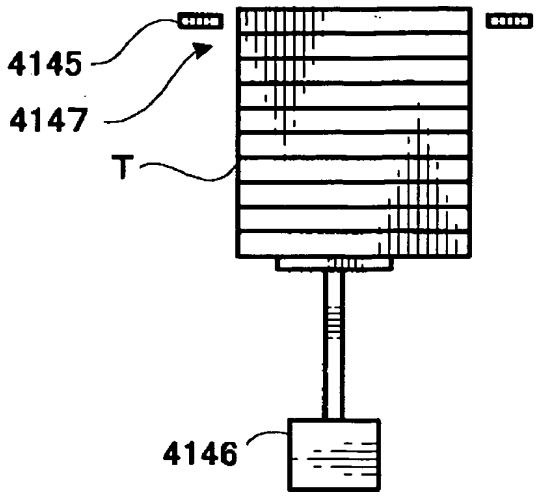


FIG. 37B

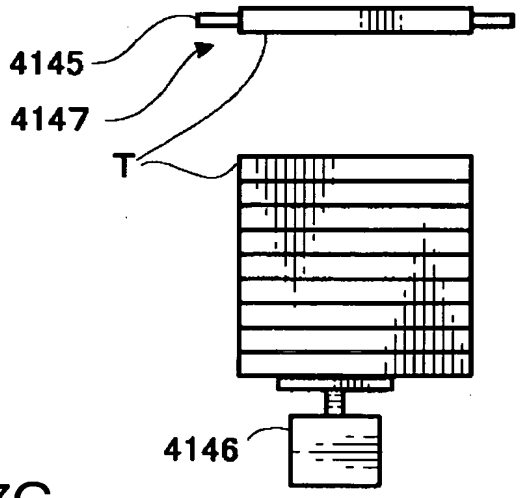


FIG. 37C

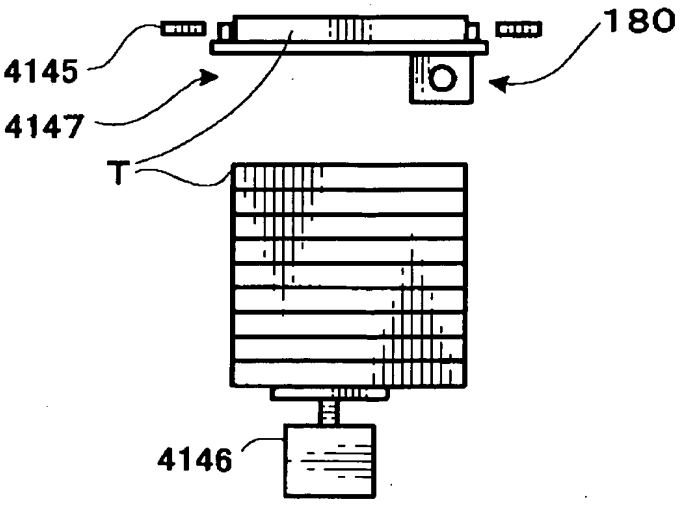


FIG. 38

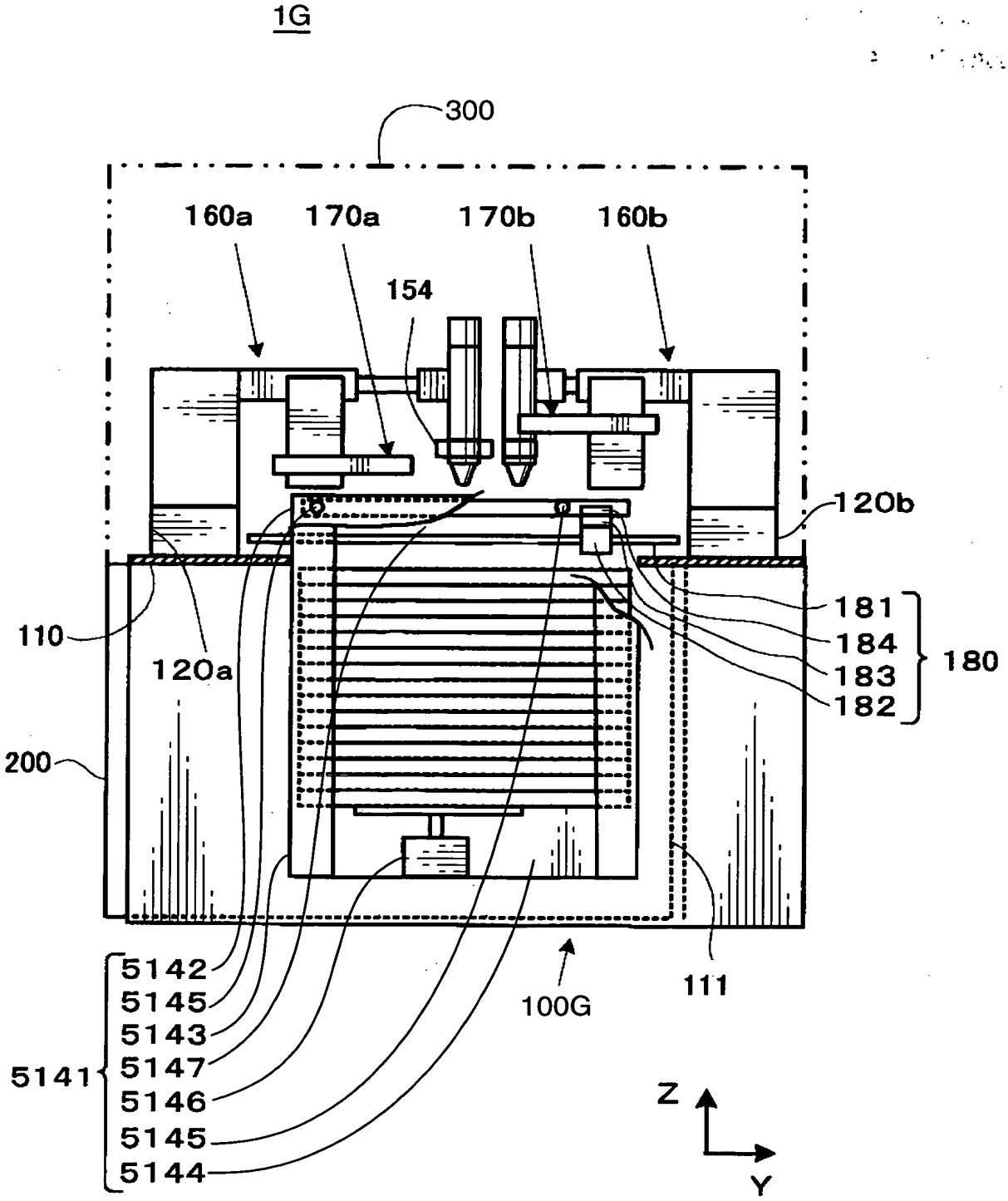

1G
300
160a
170a
170b
160b
154
120b
181
184
183
182
180
110
120a
200
5142
5145
5143
5147
5146
5145
5144
5141
100G
111
Z
Y

FIG. 39

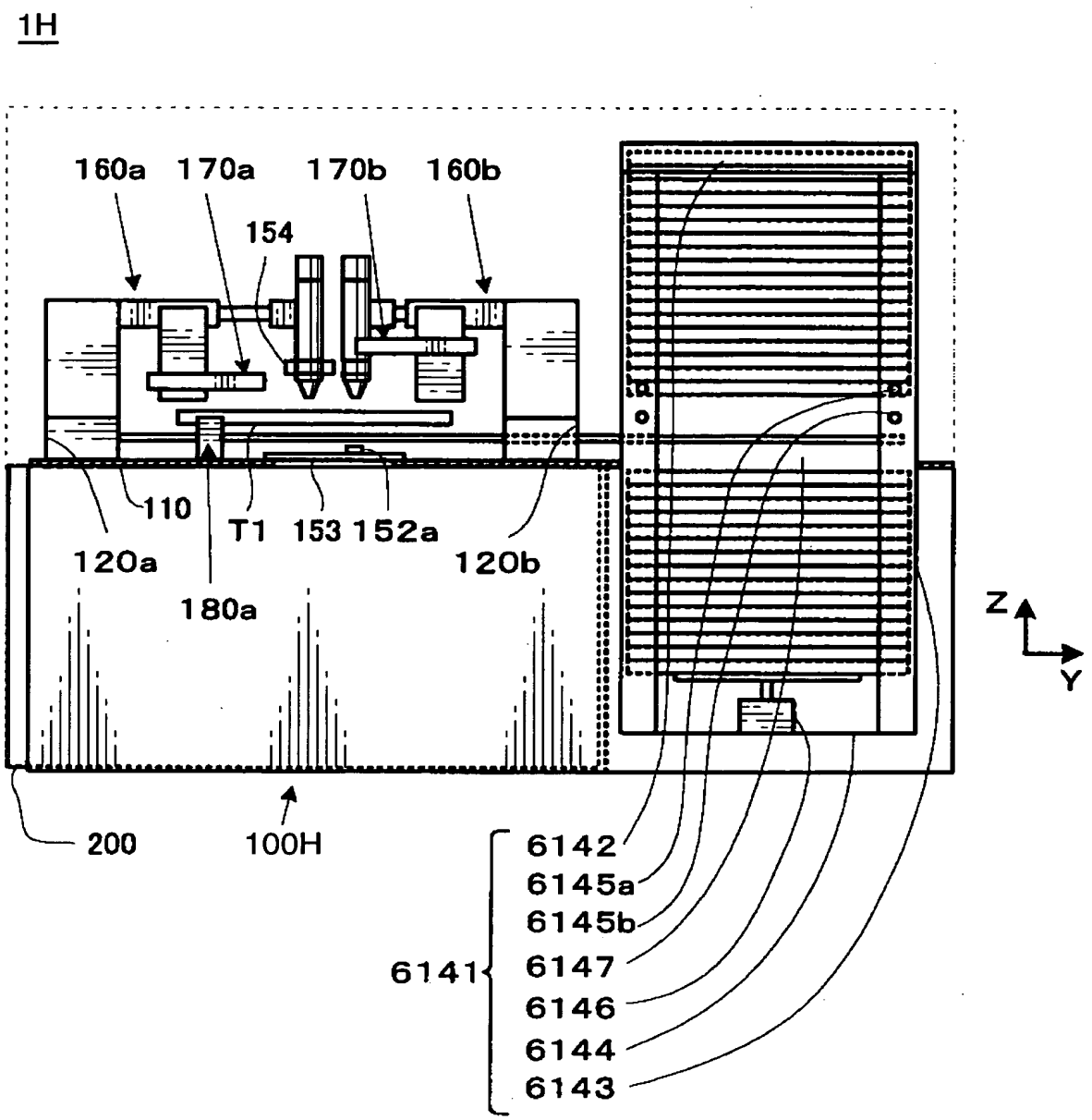

1H
160a
170a
170b
160b
154
110
T1
153
152a
120a
120b
180a
Z
Y
200
100H
6142
6145a
6145b
6147
6146
6144
6143
6141

FIG. 40A

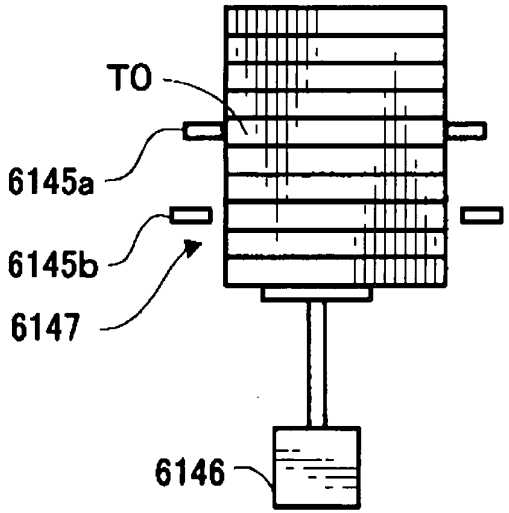


FIG. 40B

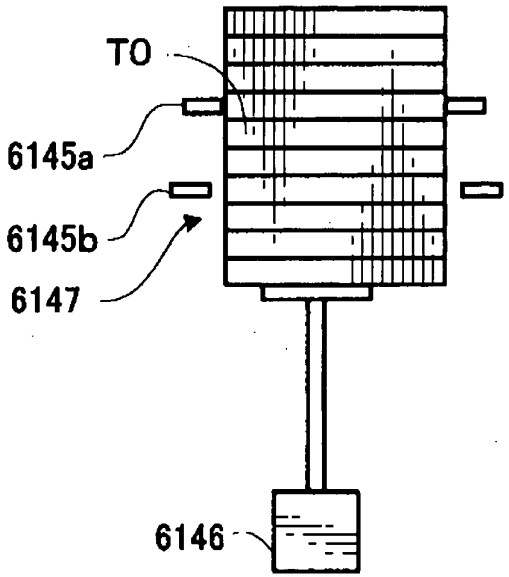


FIG. 40C

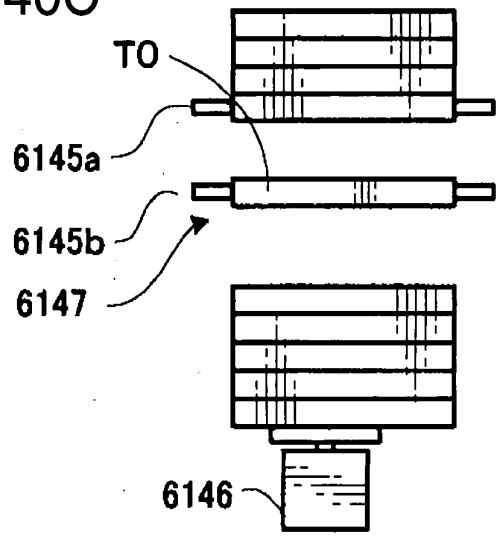


FIG. 40D

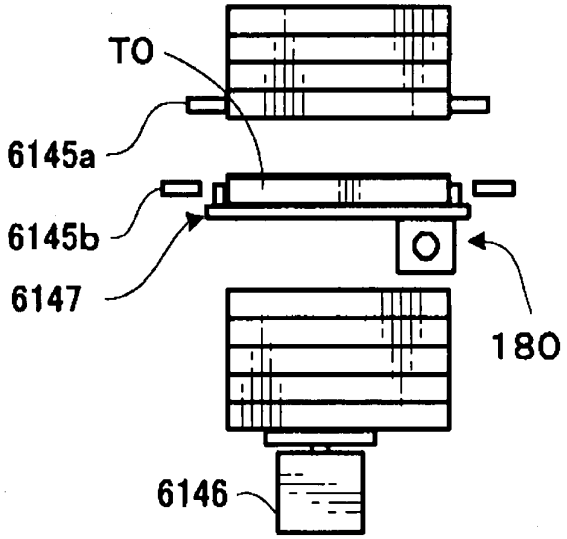


FIG. 41

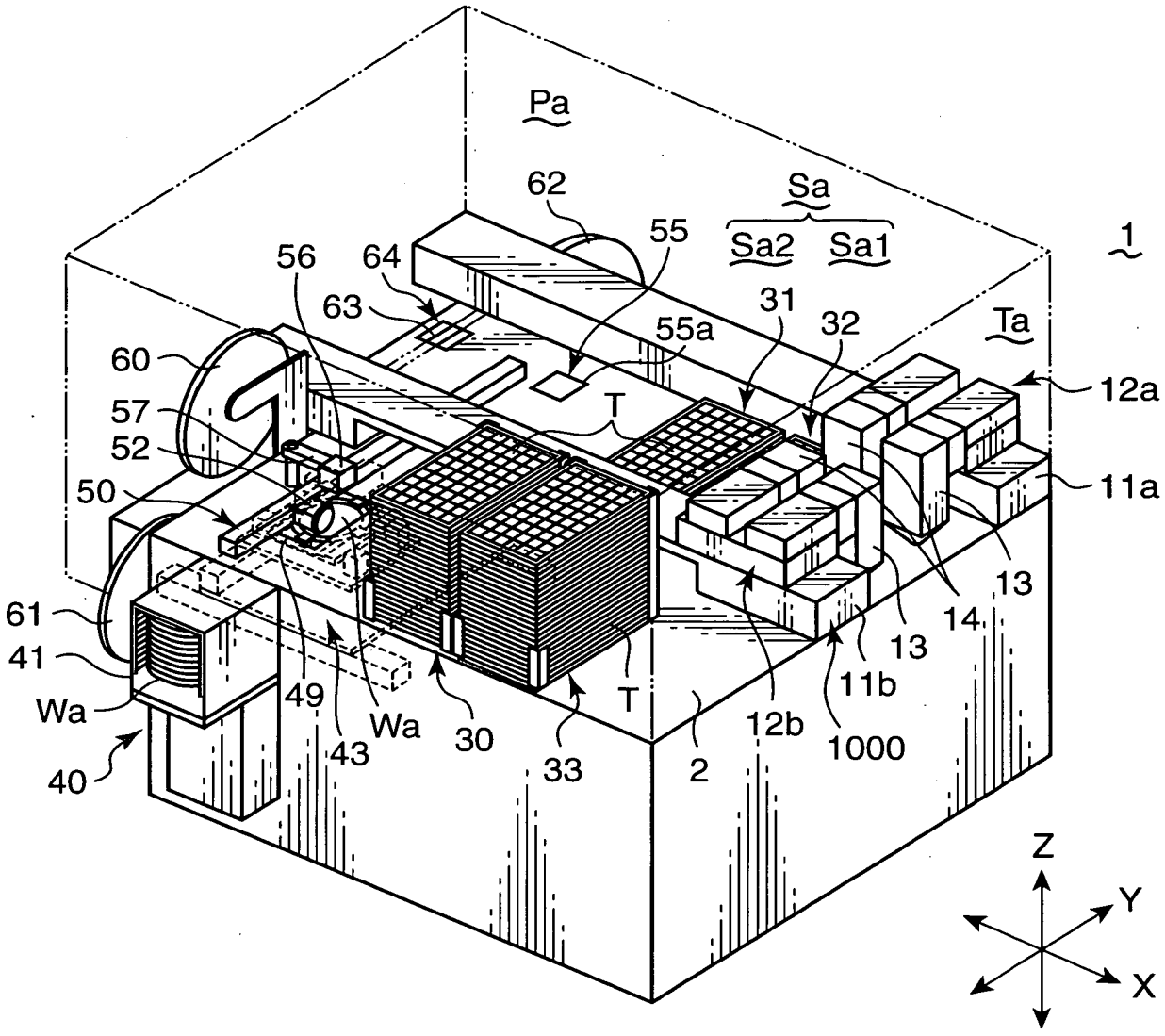

Pa
62
Sa
55
Sa2
Sa1
1
56
64
63
31
32
Ta
55a
60
12a
57
T
52
11a
50
13
14
61
13
41
11b
49
T
12b
Wa
43
Wa
30
33
2
1000
40
Z
Y
X

FIG. 42

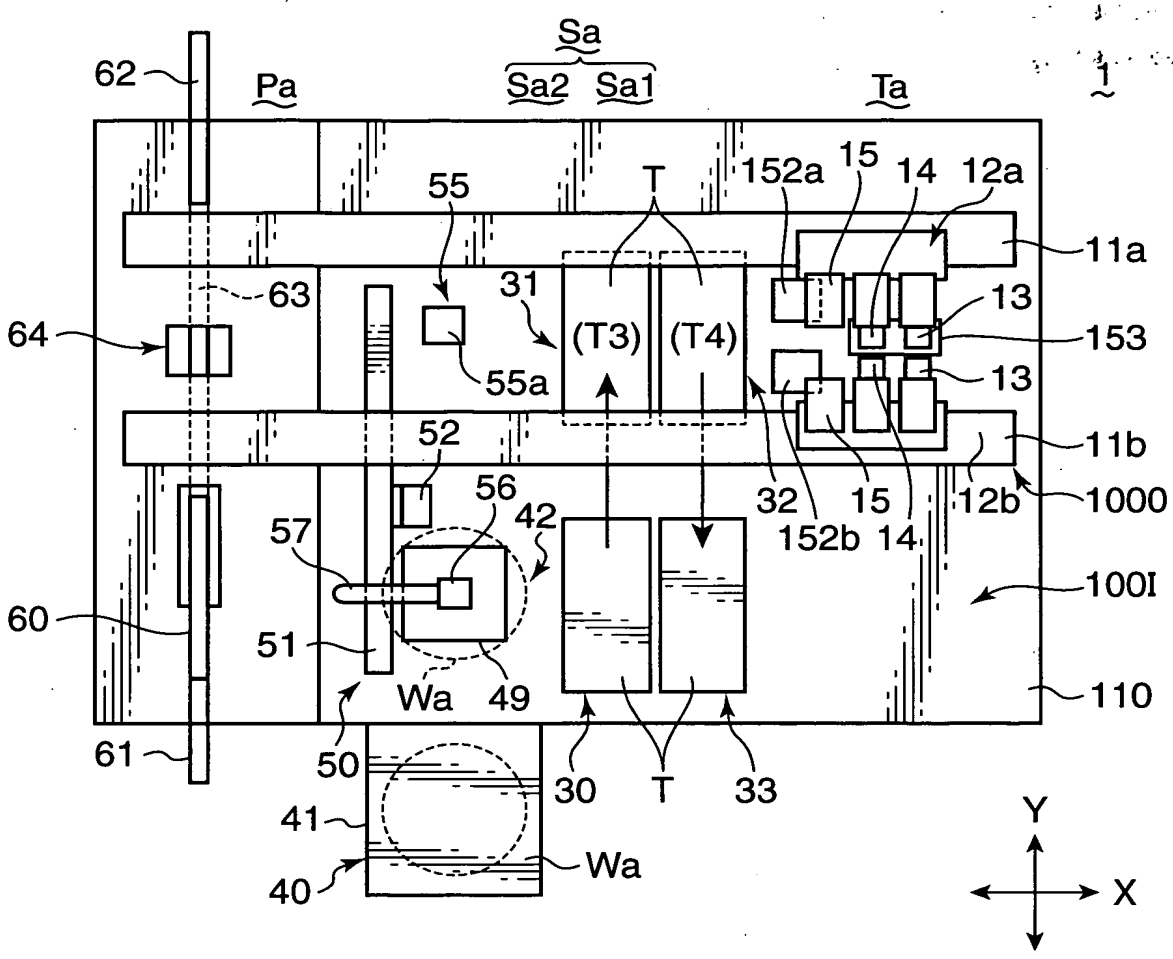

Sa
Sa2
Sa1
Pa
Ta
1
62
63
64
55
55a
31
T
(T3)
(T4)
152a
15
14
12a
11a
13
153
13
11b
52
56
42
57
51
Wa
49
50
60
61
41
40
Wa
30
T
33
32
152b
15
14
12b
1000
100I
110
Y
X

FIG. 43

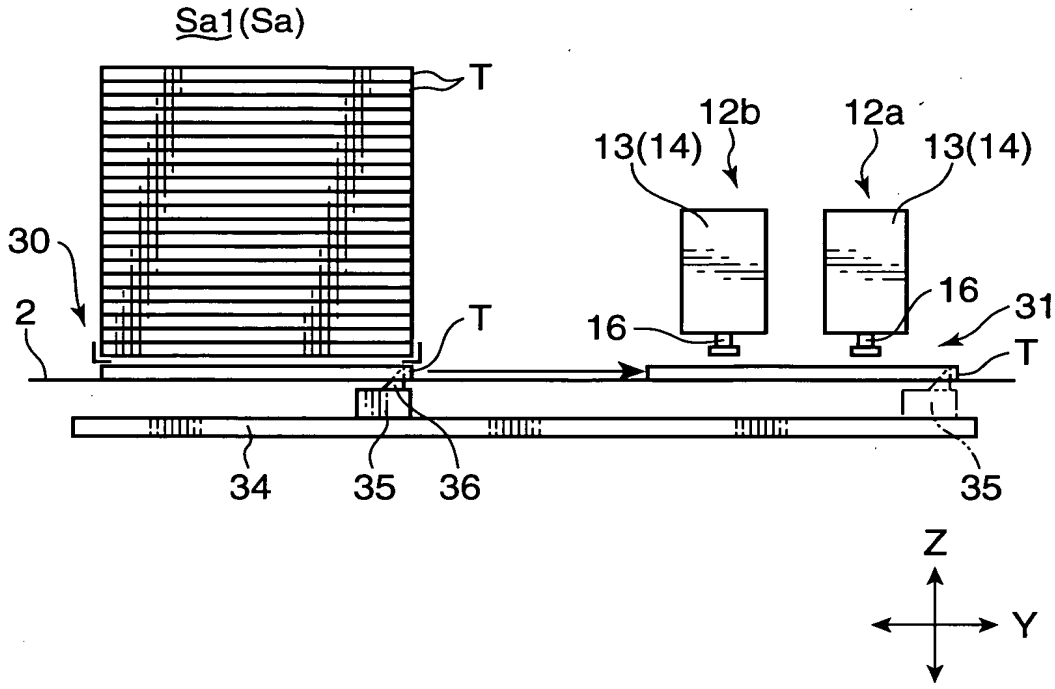


FIG. 44

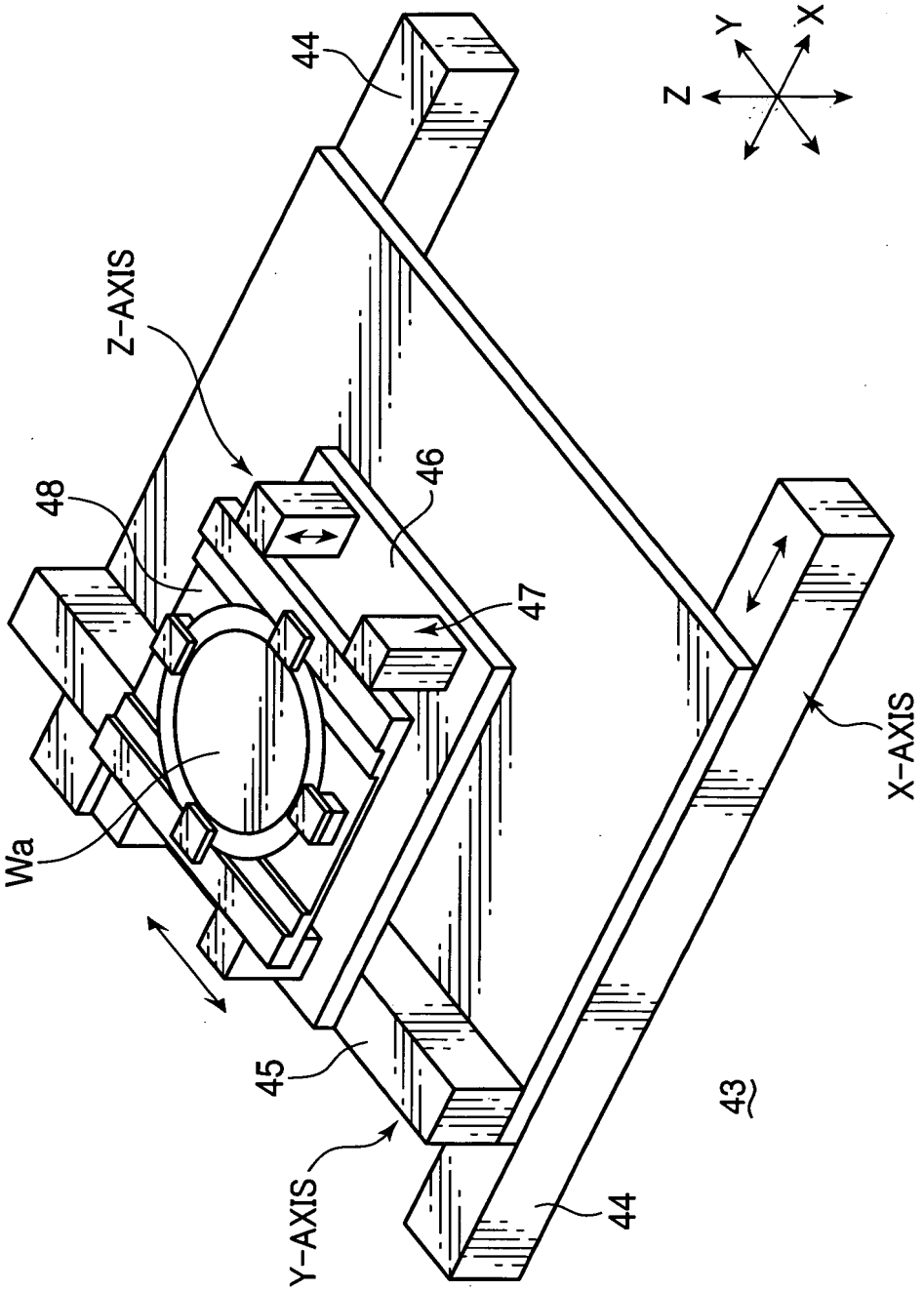


FIG. 45

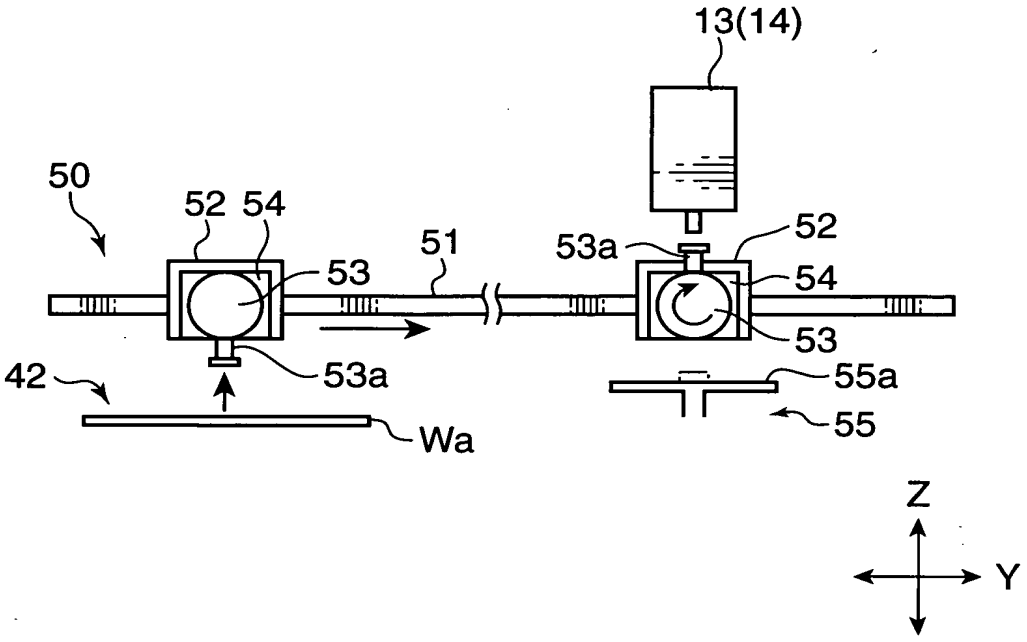


FIG. 46

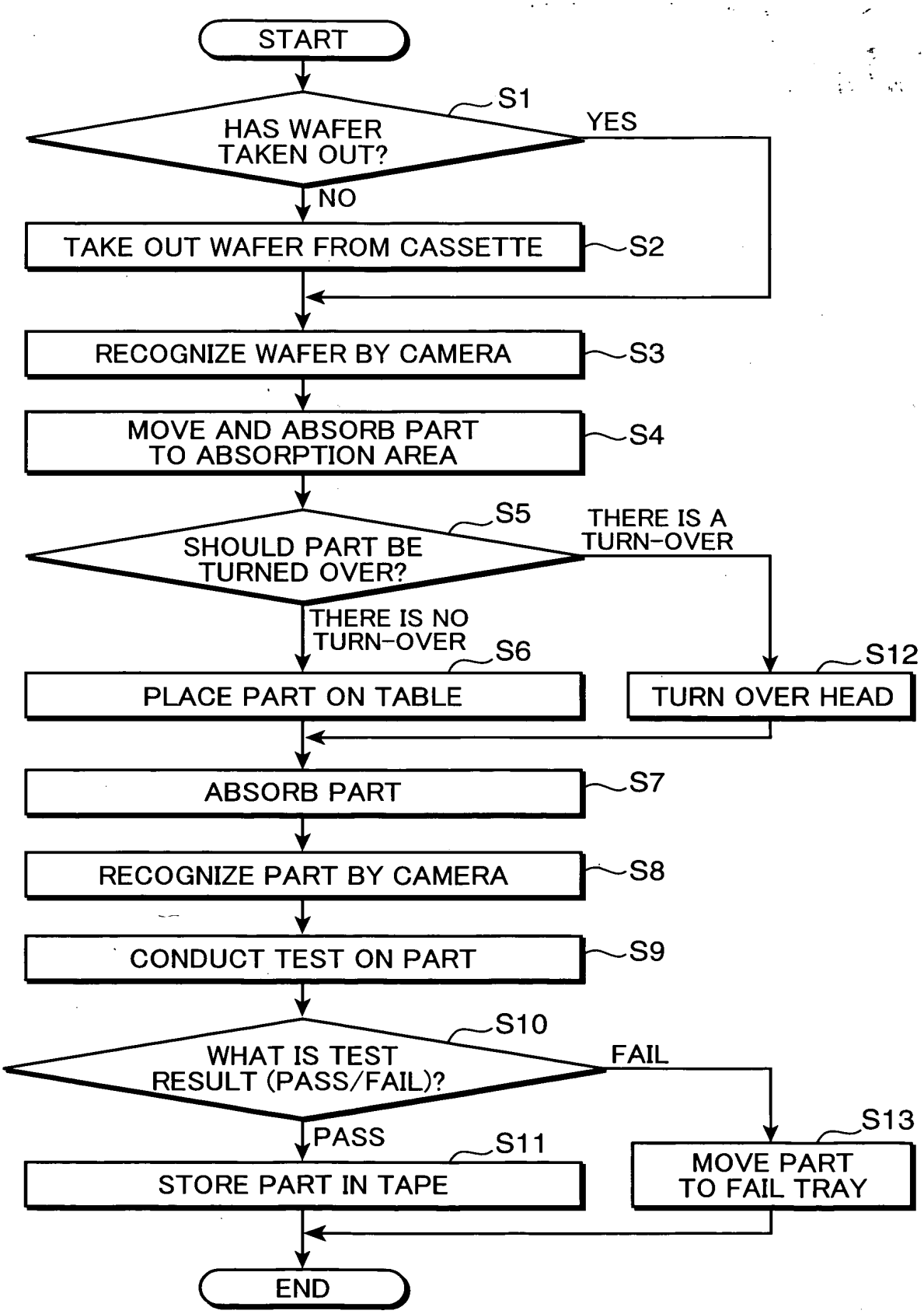

START
HAS WAFER TAKEN OUT?
S1
YES
NO
TAKE OUT WAFER FROM CASSETTE
S2
RECOGNIZE WAFER BY CAMERA
S3
MOVE AND ABSORB PART TO ABSORPTION AREA
S4
SHOULD PART BE TURNED OVER?
S5
THERE IS A TURN-OVER
THERE IS NO TURN-OVER
PLACE PART ON TABLE
S6
TURN OVER HEAD
S12
ABSORB PART
S7
RECOGNIZE PART BY CAMERA
S8
CONDUCT TEST ON PART
S9
WHAT IS TEST RESULT (PASS/FAIL)?
S10
FAIL
PASS
STORE PART IN TAPE
S11
MOVE PART TO FAIL TRAY
S13
END

FIG. 47

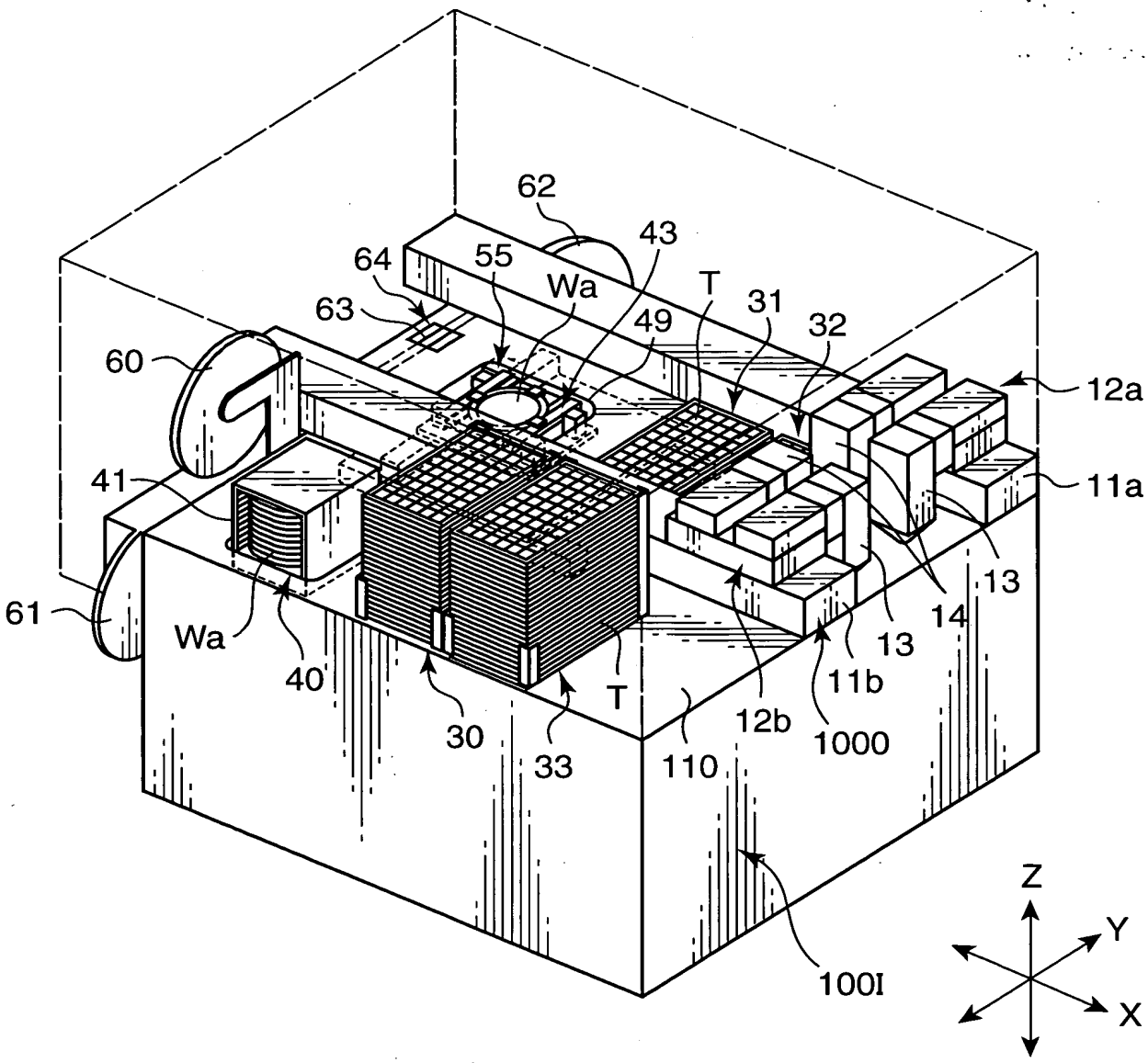

62
43
64
55
Wa
T
31
63
49
32
60
12a
41
11a
13
14
61
Wa
13
40
11b
T
12b
30
1000
33
110
100I
Z
Y
X

FIG. 48A

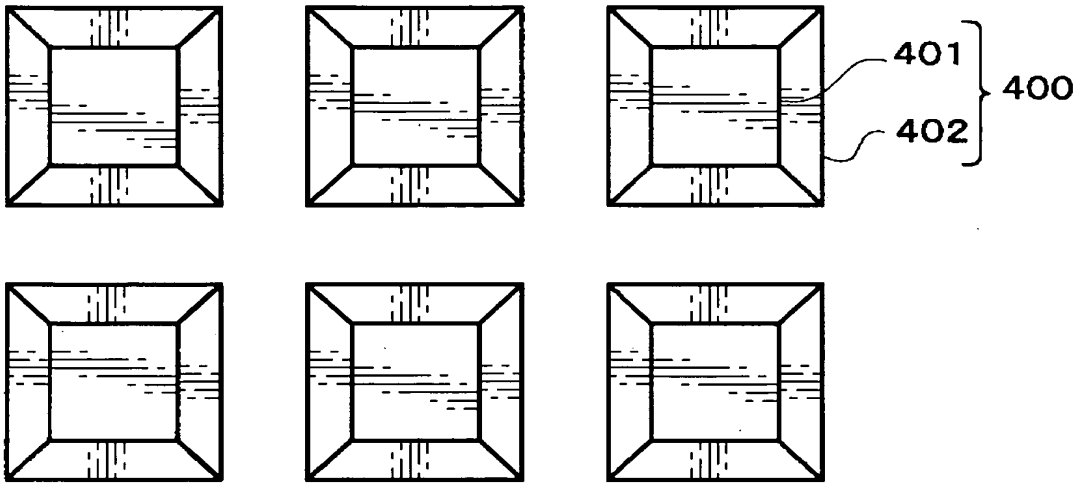


FIG. 48B

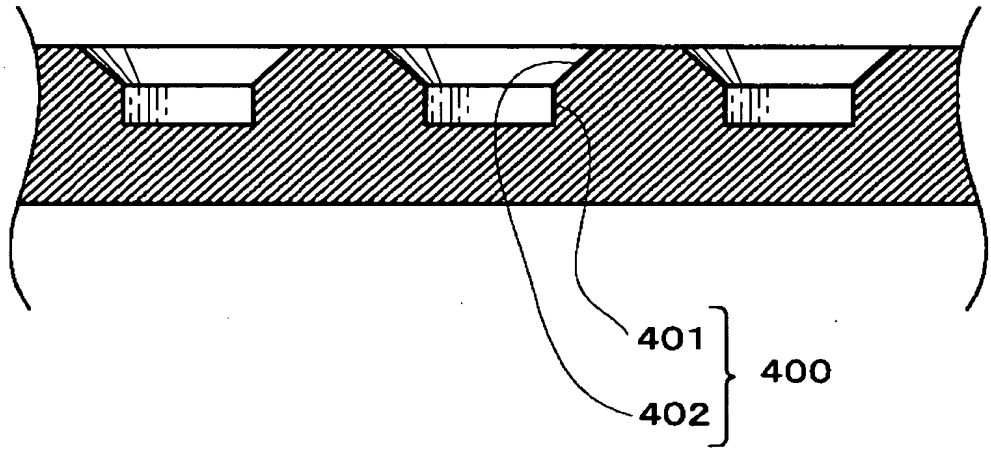


FIG. 49A

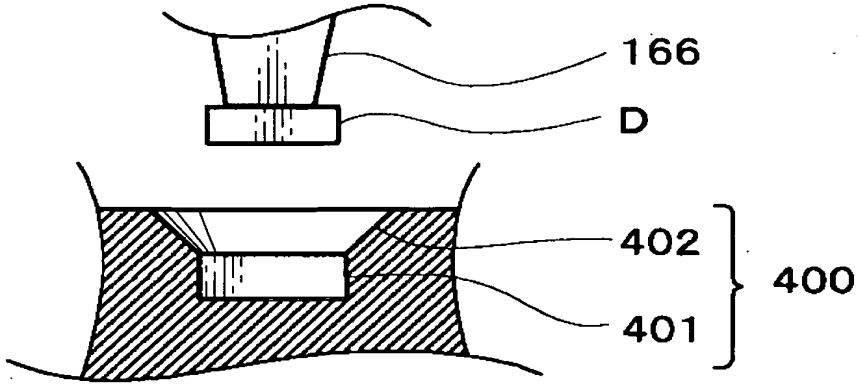


FIG. 49B

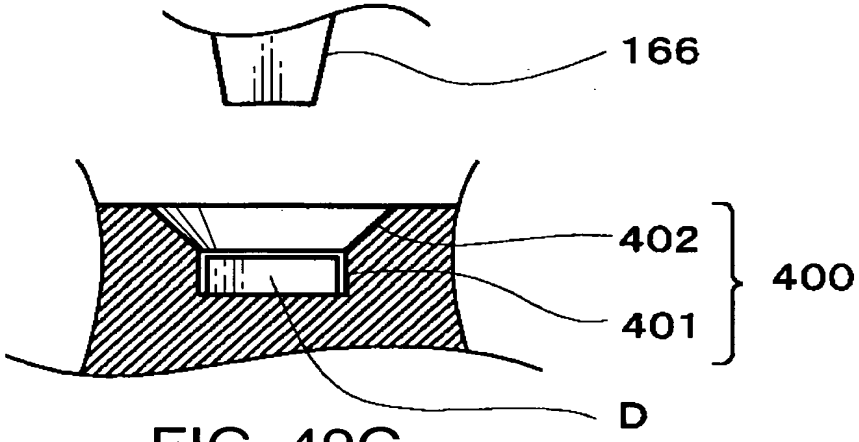


FIG. 49C

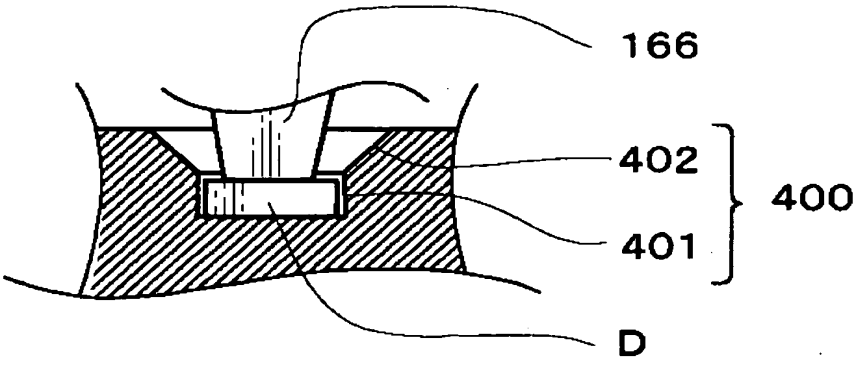


FIG. 50

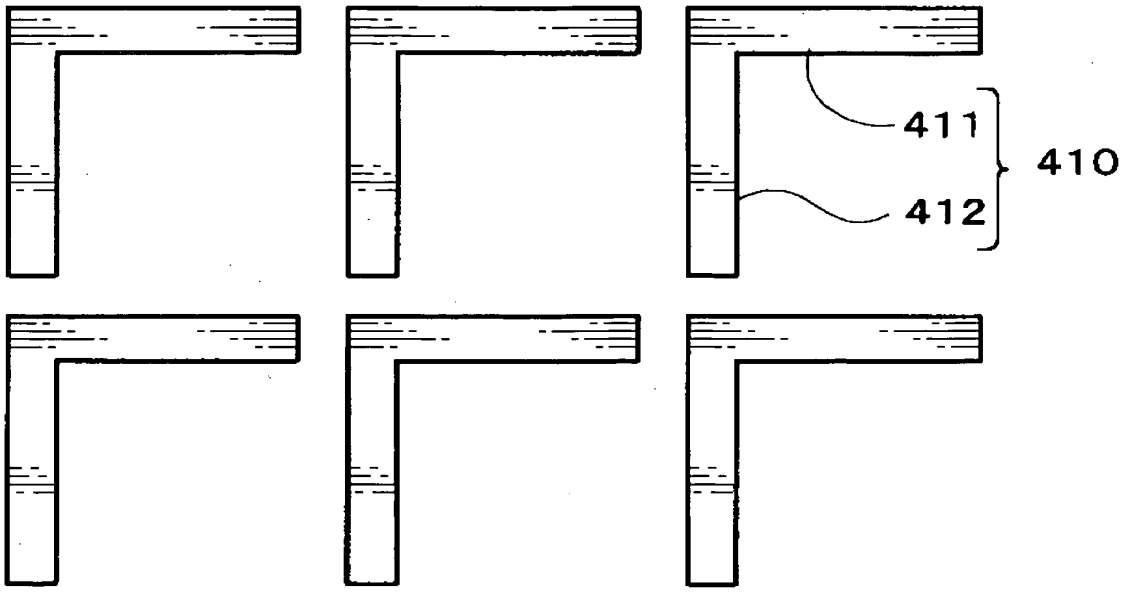


FIG. 51A

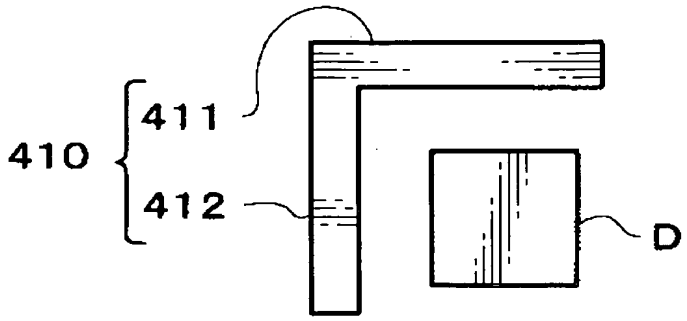


FIG. 51B

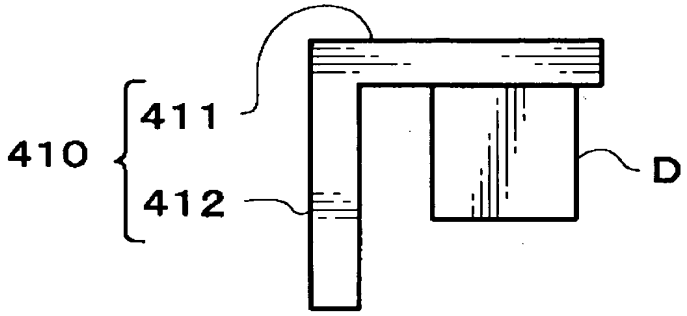


FIG. 51C

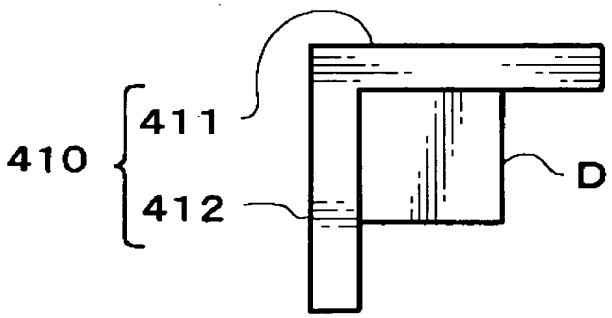
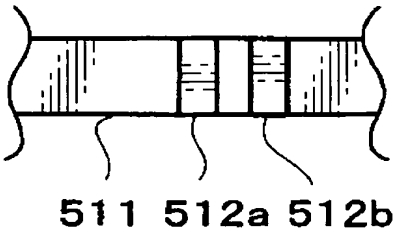


FIG. 52A



PATENT & TRADEMARK

FIG. 52B

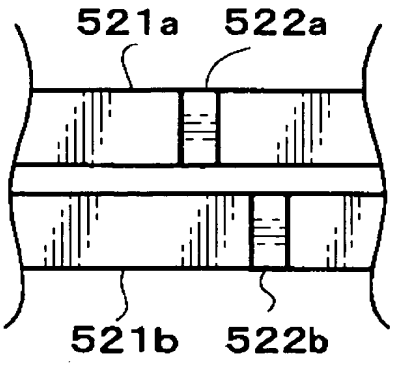


FIG. 52C

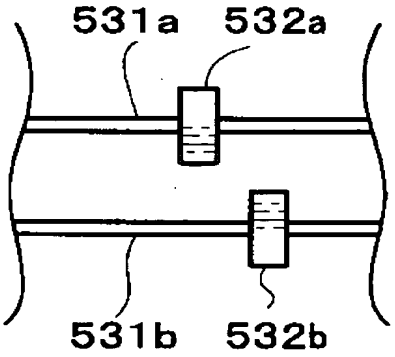
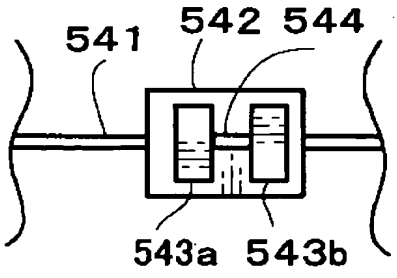



FIG. 52D